*Journal of the*

# AMERICAN PHARMACEUTICAL ASSOCIATION

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*Practical Pharmacy Edition*

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## A DECISIVE STEP IN EDUCATION

THE decision at Ohio State University to introduce a required five year curriculum leading to graduation in pharmacy will add fuel to the controversy over postwar objectives of pharmaceutical education. We can expect strong recommendations from both education experts and interested bystanders, ranging through (1) let well enough alone; (2) explore further development of the four year course; (3) extend pharmaceutical education only at the graduate level; (4) adopt some form of combination pre-pharmacy and professional curriculum of five or six years.

There seem to be as many divergent views among practicing pharmacists as among educators, but somewhere along the way there must be a meeting of minds if pharmaceutical education is to progress in an orderly fashion. It is hard to think of a subject more important to pharmacy than the formulation of a well-conceived, forward-looking educational program.

Those who are pretty well contented with preserving the status quo—assuming that the low level of professional practice in some drugstores cannot justify more extensive training for pharmacists—are involved in the time-worn question: Which comes first, the chicken or the egg? To believe that pharmaceutical practice should first advance to the point where more education becomes necessary to practice pharmacy properly, puts a considerable strain on logic. It finds little justification in the historical development of the health professions.

There is something to be said for those who believe the present four year course could be improved considerably before extending the curriculum. But with fifteen years behind us since the four year standard was adopted by the N. A. B. P. and A. A. C. P., the prospects for any remarkable improvement do not appear bright. Pharmacists must also bear in mind that the most successful education gives the student a background that will enable him to develop along with scientific progress as the years go by. It should fit him, as far as possible, for the practice of pharmacy twenty years hence when he will be in his professional prime.

If there are too many years of bickering, pharmacy may take another "progressive" step only to catch up with an educational era already on the wane. George Urdang, the eminent historian, points out that it was only between 1920 and 1932 that American pharmaceutical education caught up with European standards attained about a century before.

A good many four year graduates tell us, rather critically, that their education has not prepared them to meet the public or members of other health professions on the cultural plane that has come to be expected of professional men; that it has not prepared them to fill the role of a final source of information on drugs. It is true that pharmaceutical education today is not on an equivalent plane with education in the other health professions.

It is this problem that Dean Christensen and his associates at Ohio State University have forthrightly attacked by being the first to adopt a required five year program. Effective in July, 1948, the curriculum will demand a two year pre-pharmacy course as a prerequisite for a three year professional curriculum.

This may well mark another turning point in the progress of pharmacy. Since we have 67 colleges it is well that a few strong institutions have the initiative and courage to pioneer in meeting the needs of modern pharmacy. It is noteworthy that Ohio State has taken the lead in practical application of progressive concepts to fashion tomorrow's pharmacists; for this institution is credited with first making the four year course compulsory (although it had been first offered optionally at other schools).

Like the early four year curricula that awakened pharmaceutical education to new horizons, the "heresy" of a five year program will run the gauntlet of critical inspection and comment.

Other institutions are already considering a required five year program. At least one college has set up an optional five year curriculum offering the content of the present course (to lighten the student's academic load and permit greater enrollment). This emphasizes the need for close scrutiny of course content in evaluating departures from present patterns. Five years of training has little significance in itself.

Although most institutions will wait for the Pharmaceutical Survey to set up some educational guideposts, new opportunities for pharmaceutical progress are being forged at schools where new approaches to either graduate or undergraduate training have been adopted. To improve the practice of pharmacy the colleges must maintain the educational processes at levels above the highest levels of professional practice.

## STABILIZING CALCIUM GLUCONATE SOLUTION

Sirs:

As a suggestion to assist B. W. of New York, whose inquiry regarding stabilizing a solution of calcium gluconate appeared in the October issue (page 455), I thought you might like to have the following information which our firm offers in reply to similar inquiries.

The suggested formulation and procedure are for a stabilized 10% *w/v* solution, using calcium *d*-saccharate as the stabilizer. For a unit volume of 1 L. the following materials are required, listed in the order of addition:

| | | |
|---|---|---|
| Distilled water | 0.9 | L. |
| Calcium gluconate | 0.1 | Kg. |
| Calcium *d*-saccharate | 0.008 | Kg. |
| Distilled water, *q. s.* | 1 | L. |

Procedure: Distilled water is heated to boiling and calcium gluconate is added; mixture is stirred until calcium gluconate is entirely dissolved. With the solution at the boiling point, and during stirring, the calcium *d*-saccharate is added. Stirring is continued at the boiling point until complete dissolution is attained. The solution is allowed to cool to 40° C. and is then diluted to 1 L. with distilled water.

The stabilized solution is filtered through a Berkefeld (bacterial) filter into a clean dust-free receiver. The solution is now measured into the ampuls without splashing onto the ampul neck-wall. A momentary, fine steam-jet directed into the neck serves to rinse down any splash droplets.

The ampuls are sealed and sterilized by a recognized procedure. It is advisable to invert the ampuls during or immediately after sterilization, while they are still hot, to assure dissolution of any calcium gluconate which may be in the neck, to prevent it from later functioning as a nucleus for crystallization.

The approximate density of the solution is 1.047 at 25° C.

The most stable solution is produced by 0.006 to 0.008 Kg. calcium *d*-saccharate per liter, but if the product is to meet U. S. P. requirements only 0.0035 Kg. may be used.

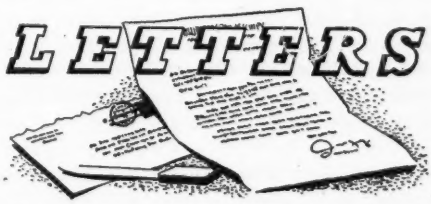
HOWARD D. SEGOOL

B. L. Lemke & Co.
New York, N. Y.

## A FUTURE PHARMACIST COMMENTS

Sirs:

I find that I have neglected to renew my membership to the A. PH. A. for the year, but trust that my remittance will not be too late to meet the deadline...




My sincere appreciation and congratulations to you and the ASSOCIATION for the fine work being done toward making pharmacy a true profession for those now engaged in it and for those of us who will be venturing into the field in the near future.

Incidentally, while attending school at the Naval Medical Center in 1945 I found time to pay a visit to the AMERICAN INSTITUTE OF PHARMACY. I was impressed with the beautiful building, the library, museum, laboratory, etc. American pharmacists can well be proud of the ASSOCIATION's building and the work being done within its walls.

Madison, Wis. ROBERT K. JOHNSON

## SUCCESSFUL DELIVERY IN "BIRTH OF A NEW DRUG"

Sirs:

I have just a few minutes to write regarding "The Birth of a New Drug" issue of the JOURNAL [March]. This is an outstanding accomplishment in the activities of the ASSOCIATION and I hope you will receive many commendatory comments on it—all of you who have had a part in the conception and production of this issue. Professionally minded pharmacists should present copies to their physicians. It would also be an excellent and valued text for student use and reference...

Cranford, N. J. HENRY J. GOECKEL

*Extra copies, 15 cents each.*—THE EDITOR

Sirs:

...I want to say that the latest issue of the PRACTICAL PHARMACY EDITION was one of the finest ever printed by any association. It was splendidly educational and will do a great service to the pharmacy profession.

Brooklyn, N. Y. ARNOLD MARCUS

Sirs:

Your March issue on "Birth of a New Drug" is a wonderful achievement...

Portland, Me. MERRILL A. HAY

Sirs:

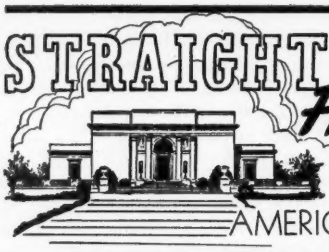
...We have read avidly "The Birth of a New Drug" in the current issue and found it highly instructive and intensely interesting.

Brooklyn, N. Y. ALEXANDER KRAUS

Sirs:

The JOURNAL outdid itself with the last PRACTICAL PHARMACY EDITION on "Birth of a New Drug." The hospital is going to order some copies for us to use in our intern pharmacy instruction.

Cleveland, O. EVLYN GRAY SCOTT



# STRAIGHT FROM HEADQUARTERS

by ROBERT P. FISCHELIS, Secretary
AMERICAN PHARMACEUTICAL ASSOCIATION

## PHARMACY IN THE ARMED SERVICES

RECENT conferences between members of the Committee on Status of Pharmacists in the Government Service and the Surgeons General of the Army and Navy have developed quite a contrast between prewar and postwar attitudes toward pharmacy on the part of the medical departments of the Army and Navy. By the time these lines are read, it is quite possible that legislation providing for a much more important place for pharmacists in the Army and Navy than they have ever held before, will be well along toward approval by the Congress and the President.

Whether the latter statement proves to be accurate or not, it is an accomplished fact that from now on we will have sympathetic rather than antagonistic reactions toward the use of pharmacists in their professional capacities by the armed services. Such a change was bound to come regardless of legislation or regulation. It is due in no small part to the improvement in the educational program of American pharmacy and to the demonstration by pharmacists in the last war that their services are indispensable on an administrative and professional level.

The appointment of liaison officers from the office of the Surgeons General of the Army, the Navy and U. S. Public Health Service to the AMERICAN PHARMACEUTICAL ASSOCIATION'S Committee on War Activities and Veterans Affairs several years ago was the beginning of a greater appreciation on the part of military and civilian officials of their interdependence for the good of the Services and civilian pharmacists. This committee had nothing to do with the work of the Committee on Status of Pharmacists in the Government Service, but the Army and Navy officers who served on this committee could not help but take back to the respective Surgeons General the reactions of civilian pharmacists to the attitudes of the Army and Navy on all matters relating to pharmaceutical practice. It did not take long to extend the interchange of views from war activities and veterans affairs to the better utilization of pharmacists in the Army and Navy. Maj. Bernard Aabel of the Pharmacy Corps has done a particularly outstanding piece of work in this regard.

What American pharmacy has needed right along in these government services is an opportunity to show what its newly trained college graduates could do. That opportunity has been afforded and will be available in much greater measure in the future. If we can now produce a sufficient number of pharmacists to take over and handle the jobs which will become available in the Army and Navy, we should make excellent progress in the next five or ten years.

Deans of colleges of pharmacy should be on the lookout for the right young men and women to fill the many jobs that are opening up for graduates in pharmacy. It is very important that we find enough men for the military as well as civilian places where pharmacy can play an important role. No group is in a better position to estimate aptitudes and skills than the faculties of colleges of pharmacy who have a chance to observe students for three or four years. This will be an increasingly important function of the college administrator.

## OUR FIRST DISTRICT MEETING

THE enthusiasm which was evinced by pharmacists who attended the first district meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION held at Omaha, Nebraska, on April 23, was a source of great encouragement to the officers of the Association who conducted this meeting.

(See page 271 for a report on the sessions.)

Many trade journals are filled with discussions bearing upon a possible business slump, and much advice is being circulated with respect to merchandising procedures in a buyer's market. It is a source of some satisfaction to learn that

pharmacists who have concentrated their attention upon the primary function of pharmacy are spending more time in the development of their professional activity and relations because they know that this phase of their activity will continue to pay dividends regardless of general business conditions.

As a matter of fact, there is always some reaction to the business barometer, even in professional work, but this reaction is not nearly as severe in connection with prescription practice or the dispensing of drugs as it is in the merchandising phases of the drugstore.

When depressions come people have less money to spend and they dispense with luxuries first. Medical care is no longer considered a luxury. Along with food, shelter, and clothing it is looked upon as a prime necessity.

Pharmacists who have been wise enough to continue the trend (which many of them followed during the war years) of expanding their professional activities and reducing the amount of time devoted to unrelated merchandising are practically unanimous in their opinion that they are devoting their time not only to more important endeavors but also to more remunerative ones. Furthermore, they are practically unanimous in their expressions of satisfaction at the opportunity to utilize their education and training more fully and to take themselves out of the class of tradesmen to a greater and greater extent.

The district meeting at Omaha, with its program devoted exclusively to professional topics, demonstrated clearly that there is a tremendous demand for programs that will give the practicing pharmacist, in terms he can understand, the results of researches now going on in the field of medicine, pharmacology, bacteriology, and chemistry. Specialists in these fields pave the way for advances in medical care but without the general practitioner of medicine and the general practitioner of pharmacy the results of these great contributions to the health and welfare of the people do not become available to the sick. There must be an adequate and continuous liaison between the research workers, the general practitioner and the patient.

The AMERICAN PHARMACEUTICAL ASSOCIATION is dedicated to the role of educator for the general practitioner of pharmacy. Heretofore it has functioned chiefly through its publications and its annual conventions. It has now added another avenue for the dissemination of information directly to practitioners in places far removed from the center of its own activities. The A. PH. A. district meetings to be held in the future will constitute another important cog in the machinery devised to keep the practicing pharmacist abreast of the developments in modern medicine.

## *THE MILWAUKEE CONVENTION*

BEFORE these lines are read by our members, they will have received individual communications regarding the program for the annual convention to be held at Milwaukee, August 24–30, 1947. The annual meeting offers every member an opportunity to make a personal contribution to the welfare of the ASSOCIATION. Here he meets with other members and has an opportunity to test his own thinking and conclusions on the proper course to pursue in his various capacities as a pharmacist, citizen, public health worker, committee member, officer, or private in the ranks.

The 1947 convention will have a number of important issues to act upon. Among these are the distribution of pharmacy's future manpower; the determination of the direction which our undergraduate educational program should take; the enlargement of our administrative activities at the Washington headquarters; the position which American pharmacy should take with respect to numerous regulatory proposals on a Federal and state level; the extent to which American pharmacy should participate in international pharmaceutical affairs.

The membership of the ASSOCIATION is showing a continuous healthy growth. The policy of the administration is to give the maximum of service to the membership permissible with available funds. Your views on these problems, which will be revealed in greater detail as the program for the meeting is formulated and published, are important and can only be recorded by active participation at the convention. Plan to be in Milwaukee the last week of August. Hotel reservations should be made promptly.

President-Elect Sylvester H. Dretzka has marshalled a fine group of aides to provide a splendid program of entertainment during the convention week. Mr. Emil Horn is the general chairman of the Convention Committee, Walter Koepke is the secretary, Frank Kuskowski is the treasurer, and Max Lemberger is chairman of the Finance Committee.

# THE AMERICAN MEDICAL ASSOCIATIC

THIS year marks the centennial of the American Medical Association. It was founded on May 5, 1847—five years before the AMERICAN PHARMACEUTICAL ASSOCIATION was organized—by delegates to the National Medical Convention in Philadelphia. An assemblage that initiated the organization proceedings had met in New York City in 1846. By an interesting coincidence, the AMERICAN PHARMACEUTICAL ASSOCIATION likewise grew from a meeting (in 1851) in New York City, attended by men with high purposes and ideals, leading to organization of the A. PH. A. at a convention in Philadelphia the following year.

Each in its own field, the two organizations have been devoted to objectives of improving the standards of professional practice and improving the quality of medical care available to the American public.

This issue of the JOURNAL is dedicated to the American Medical Association upon the occasion of its centennial. Completion of a century of service and memorable achievement in the health field will be celebrated by the Association at its annual session in Atlantic City, June 9–13. The program represents a high point in the assemblages of physicians that have been held anywhere in the world.

Delegates attending that first historic meeting in 1847 numbered only 250, representing medical institutions in 22 states and the District of Columbia. Several names were first suggested for the new permanent national association of physicians, including "The Conventional Association of the United States," and "The Medical Association of the United States of North America." Both these proposals were lost on the convention floor, after which the constitution was offered and accepted. The constitution included the clause "This institution shall be known and distinguished by the name and title of the American Medical Association."

Today the Association has 132,224 members of whom 72,888 are fellows. Members in good standing in the constituent medical associations of the states automatically become members of the American Medical Association. They do not pay any dues or contribute financially to the A.M.A. Members may apply for fellowship, and if qualified pay fellowship dues and subscribe for the *Journal*.

The Association has a democratic organizational structure. The cornerstone is the county medical society, of which there are more than 2000—known in various parts of the country as county societies, parish societies, or district societies. The county societies in a state make up the state society. The Association is thus seen to be a federation of constituent state societies which in turn are made up of component county or district societies.

The policies of the A.M.A. are determined in the last analysis by the House of Delegates, deriving its power from the state societies, which in turn derive their authority from the local membership. The national officers and employees of the Association work under the direction of the Board of Trustees, elected by the House of Delegates.

From the very beginning the American Medical Association carried on its war against quackery and has played a primary role in progress that has occurred in the abolition of nostrums, secret medicines, and quackery.

**HEADQUARTERS** building of the American Medical Association, Chicago

# COMPLETES A CENTURY OF PROGRESS

**AMERICAN PHARMACEUTICAL ASSOCIATION DEDICATES THIS ISSUE TO A. M. A. ON ITS ONE HUNDREDTH BIRTHDAY . . . FROM 1847 TO 1947 THE ASSOCIATION HAS GROWN TO ONE OF THE WORLD'S STRONGEST PROFESSIONAL ORGANIZATIONS, ELEVATING MEDICAL PRACTICE, FIGHTING QUACKERY AND IMPROVING THERAPY**

At the session on May 7, 1847 Dr. John B. Johnson of Missouri introduced a resolution in which he pointed out that numerous evils were due to the custom of allowing persons almost wholly ignorant to operate an apothecary shop and due to the universal traffic in secret medicines. He urged that schools of pharmacy be established in the individual states and that some rule be adopted that no physician patronize an apothecary who deals in "patent" or secret medicines.

Although progress in placing pharmaceutical education on the proper basis was painfully slow, medicine, too, faced a serious situation in the training of its practitioners. The primary purpose of the organization of the American Medical Association was the advancement of medical education.

In 1847 schools were mostly owned by groups of physicians who carried on medical education as a means of enhancing their individual prestige, and frequently for such added income as they might derive from teaching. Standards were non-existent. The curriculum was frequently designed with a view to being as little a burden as possible to those who sought a medical education. Those who had vested interests in medical education did not feel kindly toward the new organization which proposed to tell them how to conduct their medical schools and to place on such conduct a stamp of approval or disapproval.

Shortly after the organization of the American Medical Association the colleges associated themselves in the Association of American Medical Colleges. They began to develop among themselves concepts as to the admission of students, the methods of teaching, the hours to be spent, and decisions on other questions of medical education. But progress was slow in the fifty-three years that passed before the turn of the century.

Then came the reorganization of the American Medical Association on a more democratic basis and the establishment of the Council on Medical Education. There were at that time about 165 medical colleges in the United States, some of which admitted students directly from high school and others admitted even persons of advanced years with only a grade school education; some functioned as night schools; some had a curriculum of two years in which the same lectures were repeated in each six months; others of four years.

Even before there was a Council on Medical Education and Hospitals, the *Journal of the American Medical Association* began to publish annually a list of the medical colleges in the United States together with information as to the nature of the curriculum, the fees charged, the requirements for admission and other important data. Then with the establishment of the Council, colleges were rated in groups as to their acceptability, the possibility of improvement, and those hopelessly inadequate. The continued publication year after year of these data was an important factor in ultimately bringing about the disintegration of the weaker schools, the combining of several moderately good schools into strong schools and the encouragement of acceptable schools into a high quality of medical education. Today there are 70 acceptable medical schools in the United States and only one outside the pale of acceptability.

In the progress of medical education, the Association of American Medical Colleges, National Medical Examining Board, Federation of State Licensing Boards and assistance rendered by the Carnegie Foundation have played fundamental roles in the tremendous reform and the progress that has been made, but the American Medical Association is generally considered to have made a primary contribution in this field.

The Council on Medical Education and Hospitals is only one of many subdivisions of the A.M.A. developed over the years to fill specific needs of the medical profession.

In 1873 the Judicial Council of the association was organized to deal with matters concerning professional ethics. The first Code of Ethics of the A.M.A. was presented by a committee at the organizational meeting in 1847. Its basic soundness as a guide to the conduct of physicians is re-

flected in the fact that the present "Principles of Medical Ethics" represents relatively minor modifications of the Code established a century ago.

## Pharmacy in the Code of Ethics

The importance of pharmacy in medical care and its close relation to the medical profession makes it logical that the physician-pharmacist relationship should be covered in this code, which has been so effective in regulating medical practice. However, it is interesting and perhaps significant that, unlike the classic "Percival's Medical Ethics," the American Medical Association code of 1847 dismissed the physician-pharmacist relationship with the following statement (Chapt. 3, Art. 1, Sec. 4):

> It is the duty of physicians, who are frequent witnesses of the enormities committed by quackery, and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

At the 1903 meeting of the A.M.A. the House of Delegates unanimously adopted a revision of the original code, called "Principles of Medical Ethics," which included a marked change in the section referring to pharmacy. However, its scope remained largely limited to stating conditions under which the pharmacist should not receive the benefit of the physician's "patronage" or "influence" (Chapt. 3, Sec. 5):

> It is the duty of physicians to recognize and by legitimate patronage to promote the profession of pharmacy, on the skill and proficiency of which depends the reliability of remedies, but any pharmacist who, although educated in his own profession, is not a qualified physician, and who assumed to prescribe for the sick, ought not to receive such countenance and support. Any druggist or pharmacist who dispenses deteriorated or sophisticated drugs or who substitutes one remedy for another designated in a prescription ought thereby to forfeit the recognition and influence of physicians.

In a further revision approved at the 1912 meeting this was modified as follows (Chapt. 3, Sec. 4):

> By legitimate patronage physicians should recognize and promote the profession of pharmacy; but any pharmacist, unless he be qualified as a physician, who assumes to prescribe for the sick, should be denied such countenance and support. Moreover, whenever a druggist or pharmacist dispenses deteriorated or adulterated drugs, or substitutes one remedy for another designated in a prescription, he thereby forfeits all claims to the favorable consideration of the public and physicians.

In 1883 the *Journal of the American Medical Association* was established. This weekly journal, with a circulation in excess of 120,000, is the official spokesman for the organized medical profession of the United States. In addition to the *Journal* the American Medical Association publishes monthly journals dealing with internal medicine, pediatrics, neurology and psychiatry, surgery, dermatology and syphilology, otolaryngology, pathology, ophthalmology, and occupational medicine. These were established at various times between 1909 and 1945.

## A. Ph. A. to Exhibit at Centennial

In 1899 the American Medical Association established its scientific exhibit which has now grown until it furnishes an outstanding feature of the annual Scientific Assembly and is probably not surpassed by any scientific exhibit anywhere. The Council on Scientific Assembly was established in 1915 to take charge of the annual Scientific Assembly, including the Scientific Exhibit. The AMERICAN PHARMACEUTICAL ASSOCIATION or its branches has at various times represented pharmacy through exhibits at the annual Assembly. At the centennial Assembly in Atlantic City, the A. PH. A. will have an exhibit entitled "A Century of Progress in Drug Standardization," which will illustrate the activities of the AMERICAN PHARMACEUTICAL ASSOCIATION in the evolution of official and unofficial drug standards since the A. PH. A. was founded in 1852.

In 1904 the A.M.A.'s Council on Medical Education and Hospitals began its work of conducting a clearing house for information concerning medical education (as previously mentioned) and concerning hospitals.

The Council on Pharmacy and Chemistry was organized in 1905 to investigate and report on medicinal products offered to physicians for their use. Through this Council numerous investiga-

PRESIDENT HARRISON SHOULDERS AMERICAN MEDICAL ASSOCIATION

tions have been made and reports published in the A.M.A.'s *Journal*. The JOURNAL OF THE A. PH.A. likewise publishes this material regularly and was the first pharmaceutical publication to make the Council's significant reports available to pharmacists. Since 1909 the Council has published annual volumes of *New and Nonofficial Remedies* which have been helpful to physicians and pharmacists alike.

In 1906, as an adjunct to the Council on Pharmacy and Chemistry, a Chemical Laboratory was established, whose functions are described elsewhere in this issue. Approximately 150 preparations pass through the laboratory each year. A pharmaceutical manufacturer—if he chooses—submits a sample of a new product along with detailed data on its name, nature, preparation and use and evidence to support his claims. The product and evidence submitted goes to the laboratory for chemical examination. A report, including an analysis and a finding of "satisfactory" or "unsatisfactory," is sent to the Council. Investigation is also begun by the Council of 18 scientists, most of whom are medical men. If the material is approved, the firm receives a shield-shaped emblem letter "Accepted—American Medical Assn.—Council on Pharmacy and Chemistry." If the product receives an unsatisfactory report the company gets an explanation and an opportunity to correct the formula.

Cooperation between manufacturers and the Council has helped reduce the flow of questionable drugs. Today, less than 1% of the specimens submitted are rejected.

## Libel Suits for $30,000,000

The Association established a Bureau of Investigation in 1906 to gather information on the nostrum evil and on quackery, medical frauds, fallacies, faddism, and allied topics. This material is published from time to time in the A.M.A.'s *Journal* and has been compiled into two volumes entitled *Nostrums and Quackery*, as well as numerous pamphlets. More than $30,000,000 in libel suits have been pressed against the Association through the years for its attacks on charlatans, but it has never compromised or settled a libel suit.

The Bureau of Investigation is a clearing house for information on subjects with which it deals. Federal, state, and municipal health officials, teachers in schools and colleges, physicians and others interested in the public health refer thousands of inquiries to this bureau each year. The functions of the Bureau are educational in character—not punitive.

The *American Medical Directory* was begun in 1906. It is a central listing of data on all physicians known to the American Medical Association, including interns and residents in hospitals. Nonmembers as well as members are included. The directory also lists hospitals and allied institutions. It is ordinarily published every two years, but publication was postponed during the war.

In 1911, long before health education was a popular subject, the American Medical Association established a Council on Health and Public Instruction, which was renamed the Bureau of Health Education in 1938. The purpose of the Bureau is to promote popular understanding of health and the relation of medicine to the public health through such media as *Hygeia*, pamphlet

publications, radio talks and dramas, cooperative advisory relationships with lay organizations interested in health education, health exhibits, personal addresses by the director, and by furnishing material for activities in health education to the state, county and district medical organizations.

### Library Services

In 1910 the American Medical Association library was established, through which physicians can borrow packages of clippings or single issues of medical periodicals. Another part of the service of the A.M.A. library is maintenance of the *Quarterly Cumulative Index Medicus*, which was taken over by the American Medical Association in 1915 and has been published ever since at a substantial annual loss. It offers physicians and members of other health professions an index to all significant medical literature in every language.

The Bureau of Legal Medicine and Legislation was established in 1922. Through this bureau the medical profession is kept informed of legislative proposals, and the legislators in turn are advised as to the opinion of physicians on legislation affecting the public health.

In 1923 the American Medical Association launched a project which has proved to be unique: a magazine for the laity, titled *Hygeia*, having national circulation and devoted exclusively to authoritative material on health and health education.

The Council on Physical Medicine was established in 1925 and the Council on Foods and Nutrition in 1929. These are similar in character to the Council on Pharmacy and Chemistry, but they deal, respectively, with methods and appliances in physical therapy and with foods. The influence of such councils and committees is to discourage exploitation of the public by those who would foist upon them or upon the profession methods, apparatus or products which are advertised with claims that cannot be substantiated.

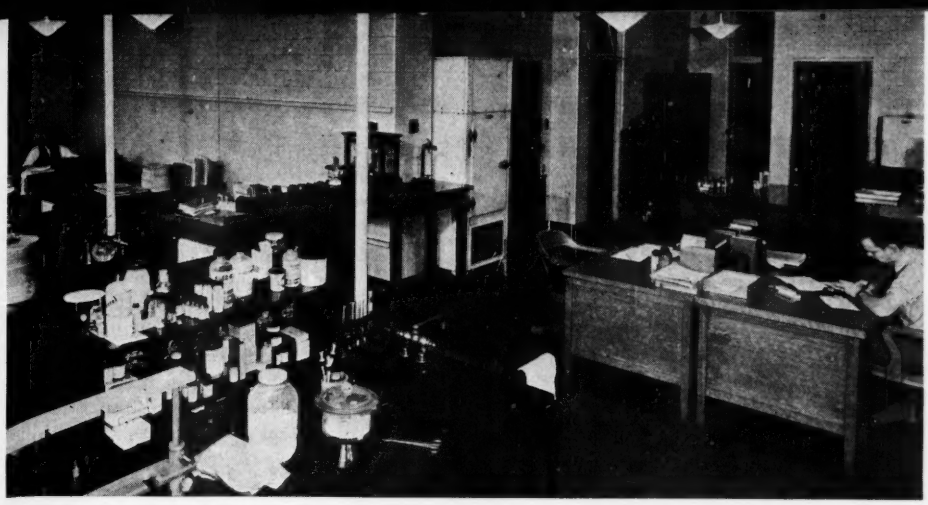
The Council on Industrial Health was established in 1938 to deal, as its name indicates, with medical and health problems in industry and with the health of workers in industrial plants.

### For More Adequate Medical Care

The Bureau of Medical Economic Research was established in 1931 to study the economic aspects of the practice of medicine in the United States, which covers the supply of and the demand for medical service. In 1944 the Council on Medical Service was set up to develop ways and means of supplying the American people with adequate medical service, including the development of voluntary types of prepayment insurance plans.

These and other activities of the American Medical Association are centered in its Chicago headquarters building at 535 N. Dearborn St., where about 600 persons are employed. Its program is directed toward raising the standards of medical practice, keeping the profession free from contamination by selfish interests and enabling it to serve the public better. In addition the Association, from its national headquarters and through many of its state and county societies, offers a variety of educational services to the public.

The record of the American Medical Association in achieving its objectives over the past century is an impressive one. On the occasion of this centennial observance, the members of the AMERICAN PHARMACEUTICAL ASSOCIATION extend their congratulations to members of the American Medical Association and their wishes that the growing cooperation between our respective organizations and member-practitioners will continue to grow with the years.



# THE A. M. A. CHEMICAL LABORATORY

by ALBERT E. SIDWELL, JR.*

**SINCE 1906 A. M. A. LABORATORY HAS AIDED BOTH PHARMACY AND MEDICINE BY CRITICALLY EVALUATING DRUGS AND DISCREDITING UNSOUND CLAIMS AND PRODUCTS.**

THE Chemical Laboratory of the American Medical Association is a department of the Association of special interest to members of the pharmaceutical profession because it has always operated in a field of common importance to medicine and pharmacy—the examination and standardization of drugs and medicinals, which form the therapeutic tools of one and the stock-in-trade of the other.

It would be difficult indeed to settle upon a birth date for modern practical and scientific pharmacy and medicine. A fair estimate might be back about 1905 or 1906. Among events within that period which exerted a profound influence on the subsequent course of pharmacy and medicine were the foundation of the Council on Pharmacy and Chemistry of the American Medical Association in 1905, followed by the establishment of the A. M. A. Bureau of Investigation and the A. M. A. Chemical Laboratory in 1906.

These three events were closely related because they were motivated largely by convictions that had been steadily growing stronger throughout the previous quarter century—convictions in favor of safety and rationality in pharmacy and medicine. Their advent gave impetus in directions which have led to progress in the scientific development and careful control of drugs and medicinals undreamed of at the time—a progress so rapid that today medicine and pharmacy stand firmly upon the threshold of a new era by virtue of cooperation among many allied sciences and arts.

The Chemical Laboratory is responsible through the General Manager to the Board of Trustees of the American Medical Association. It is an organizational part of the recently constituted Division of Therapy and Research. The Laboratory is located in the northeast portion of the fifth floor of the Association headquarters building at 535 North Dearborn Street, in Chicago. The present facilities occupy about one-sixth of the fifth floor area and are believed to be equipped to handle almost any chemical problem demanded by drug standardization. Stated briefly, the laboratory space is comprised of a small office, a library, a spectrochemical and darkroom, a tile-walled general laboratory and desk area, an air-conditioned room, a general purpose utility and hood room, and a storeroom for chemicals and glassware.

The A. M. A. Chemical Laboratory was established to serve a broad and unique purpose. Immediately following the formation of the Council on Pharmacy and Chemistry, steps were taken to encourage rational, scientific medicine

* Director, Chemical Laboratory, American Medical Association.

through critical evaluation of both old and new drug products which were being advertised to the medical profession. To accomplish this task it became apparent that a source of impartial chemical and pharmaceutical information as to the composition of many nostrums, as well as drugs and medicinals of proved therapeutic worth, was essential to the work of the Council. Accordingly, the A. M. A. Chemical Laboratory was established in October, 1906.

At nearly the same time, the A. M. A. Bureau of Investigation was formed to combat quackery and fraud perpetrated on the public in the name of medicine. Working cooperatively, the Council on Pharmacy and Chemistry, the Bureau of Investigation and the Chemical Laboratory sought to discredit fanciful therapeutic claims, secrecy in composition and unscrupulous practices in manufacture which were each widely prevalent at the time.

The work of the A. M. A. Chemical Laboratory has always been primarily associated with the physical and chemical examination of drug products at the request of the Council on Pharmacy and Chemistry. Under the rules of the Council, the manufacturer of a product submitted for consideration is requested to supply complete and accurate information concerning the nature and composition of the therapeutically active agent and other materials which constitute the finished product. The job of the Chemical Laboratory is to verify chemical statements made by manufacturers, and to confirm or disprove claims based upon chemical information.

Forty years ago the work was a challenge to the Laboratory staff, and it is no less challenging today. In the early years it was often necessary to carry out investigations as to the exact chemical nature of many of the products then on the market. This was particularly true because chemistry, and more particularly analytical chemistry related to the active components of drugs, was in its infancy within the United States. Chemical and drug manufacture was well established in some parts of the country, but properly qualified pharmaceutical chemists and others interested in synthesis were few in number.

## New Techniques

Today, the problem of drug analysis is still intensely interesting because of the tremendous increase in the variety and complexity of the therapeutic agents made available through applied research. In addition to the time-tried classical methods of chemical analysis, many recently developed techniques, such as chromatographic adsorption, visual and ultraviolet spectrophotometry and fluorimetry, must be employed in modern drug control.

The A. M. A. Chemical Laboratory was among the first to install a "microchemical room." It was also among the first to adopt microchemical procedures for the examination of medicinals of high potency and of comparatively great cost.

Another tool of analysis which the Laboratory was among the first to apply in drug standardization is that of photoelectric spectrophotometry. Because the absorption spectrum of a pure compound may be quantitated under a given set of conditions, we should expect to see greater use of this method in the future.

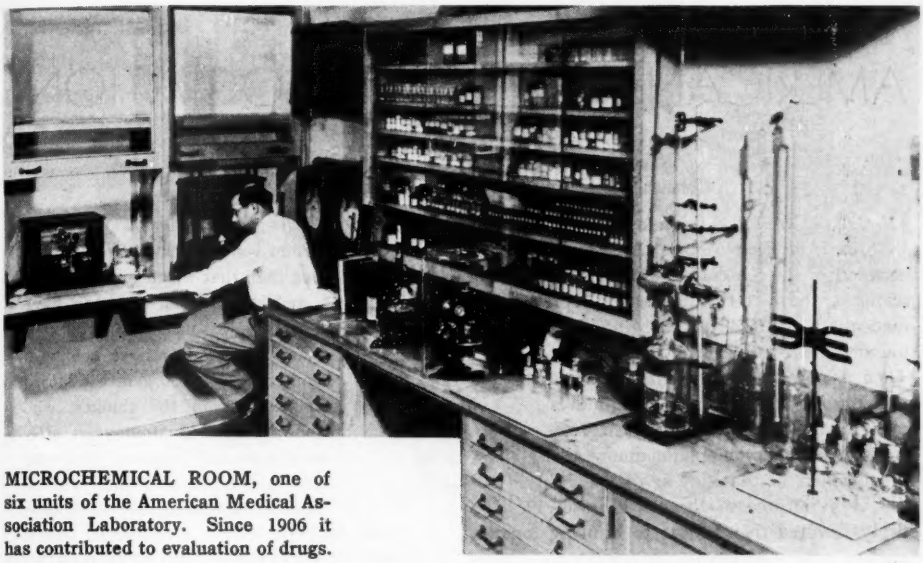
## Standards for Nonofficial Drugs

One of the most important functions of the Chemical Laboratory over the years has been that of drafting tests and standards for new drugs, which are subsequently published in the book, *New and Nonofficial Remedies*, under the auspices of the Council on Pharmacy and Chemistry. The standards drawn up by the Laboratory, in collaboration with the manufacturer and other interested groups, are designed to provide an adequate description of a drug, together with suitable tests of identity, purity and strength, to provide a yardstick of uniformity in manufacture. *New and Nonofficial Remedies* has served a useful and important purpose, not alone as a source of information on the actions and uses of many new drugs, but as a semi-official collection of drug standards. In this respect it has ranked with the United States Pharmacopœia and The National Formulary in usefulness to pharmacists and manufacturers of therapeutic agents.

When a new drug is submitted to the Council on Pharmacy and Chemistry for consideration toward inclusion in N. N. R., specimens of the drug and three samples of the finished dosage forms offered on the market are requested. After examination in the Laboratory, representative specimens of each product are filed for future reference. The same is true of products sent to the Laboratory by the A. M. A. Bureau of Investigation.

The specimen file in the Laboratory is particularly interesting because its contents could provide a résumé of forty years of medical progress. This file often makes it possible to compare the products of various manufacturers—a fact which is of particular interest when new sources or improved syntheses are brought into the field.

Thus it is possible to find original specimens of drugs which were the concern of the Laboratory forty years ago. As examples, we might find



**MICROCHEMICAL ROOM, one of six units of the American Medical Association Laboratory. Since 1906 it has contributed to evaluation of drugs.**

Calcidin, an "iodized calcium" preparation; Atoxyl, an organic arsenical; Pas-Avena, a "nerve sedative and hypnotic"; and others such as Burnham's Soluble Iodine; Zyme-Oid; Capudine; Thioform and Veronal. Each of these were the subject of publications from the Laboratory in the early days. Twenty years ago, ephedrine alkaloid and its sulfate and hydrochloride salts were being standardized, as was procaine borate; and among other remedies, "Psycosulphene," which "promotes circulation through the feet," and "Inner-Clean," which was "not a drug, but nature's way—makes you better day by day," were the subjects of reports by the Chemical Laboratory.

In recent years, newly developed sulfonamides, synthetic estrogens, antimalarials, vasoconstrictive substances, antihistamine agents and a wide variety of other therapeutic agents have been examined in the Laboratory. Because the research and control staffs of pharmaceutical manufacturers have constantly striven for improvement during the past years, much of the critical chemical work of the Laboratory is lightened by well detailed presentations of information. This, it is believed, is the direct result of a widespread and continually growing sense of responsibility for the welfare of the public on the part of manufacturers and distributors of medicine. As might be expected, however, the Laboratory sometimes finds products which, in its opinion, could be improved. Therefore, it is a continuing function of the Laboratory to transmit information which it feels will be of material assistance in the manufacture or control of the new or old drugs which it is called upon to examine.

In addition to work performed for the Council on Pharmacy and Chemistry and for the Bureau of Investigation, the A. M. A. Chemical Laboratory is of assistance to a number of the other councils and departments of the Association. It provides technical advice to the Editorial Department and to the Library in connection with chemical nomenclature, phraseology, and indexing. It examines and comments upon medical products and devices for the Advertising Committee, when such products do not fall within the purview of a particular council. In short, it serves wherever it can be of some assistance.

The Laboratory cannot undertake commercial analysis on a fee basis for obvious reasons, neither can it undertake the analysis of specimens or products at the request of individual physicians. It must confine its work to those products of general interest to physicians and pharmacists and to the examination of new and nonofficial remedies. Only in this manner can the necessarily limited facilities and staff of the Laboratory accomplish the purpose for which it was founded.

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# A TRIBUTE TO THE AMERICAN MEDICAL ASSOCIATION

by EARL R. SERLES

PRESIDENT, AMERICAN PHARMACEUTICAL ASSOCIATION

IN DEDICATING this issue of our JOURNAL to the American Medical Association, on the occasion of its centennial, we do so fully conscious of the fact that at best it represents an inadequate tribute to the progenitors who founded the Association on May 5, 1847. Then, as now, there were selfish interests that too frequently permeate the minds of men; and medical history clearly records the diversity of opinion among the practitioners of that day as to the sincerity of purpose of those who unselfishly devoted their efforts to bringing together various groups within the profession.

But the delegates from 22 states and the District of Columbia who assembled on that memorable day in 1847 nobly met a challenge. It was a time of inadequate facilities of travel and an almost total lack of the means of communication. It was a time when men might earn the coveted degree of Doctor of Medicine by successfully completing (or perhaps we should say attending) formal lectures for a period of thirteen to sixteen weeks on two or three successive occasions—a far cry from the present seven-year collegiate program and year of internship.

The delegates to that 1847 meeting saw far beyond the limitations and conditions of the period in which they lived. This is typified by the Code of Ethics that they promulgated, a code of such stature as to provide the proper guidance for medical practitioners even to this day. It is clear that the character of the men who assumed responsibility for formulating these principles marks them as the leaders of the medical profession of their time. It may even be that they should now be accorded the distinction of being known as truly great men, whose wisdom and sincerity of purpose transcends the realm of mediocrity, elevating each to the position of a hero. Truly, these men have measured up in all respects to the standards set by Oliver Wendell Holmes, Jr., when he said:

> No man has earned the right to intellectual ambition until he has learned to lay his course by a star which he has never seen... to dig by the divining rod for springs which he may never reach.... To think great thoughts, you must be heroes as well as idealists. Only when you have worked alone... when you have felt around you a black gulf of solitude more isolating than that which surrounds the dying man, and in hope and in despair have trusted to your own unshaken will . . . then only will you have achieved. Thus only can you gain the sacred isolated joy of the thinker, who knows that a hundred years after he is dead and forgotten, men who have never heard of him will be moving to the measure of his thought ... the subtle rapture of a postponed power, which the world knows not, because it has no external trappings, but which to his prophetic vision is more real than that which commands an army.

In each succeeding generation, men have come forth to lead the American Medical Association to even greater accomplishments. Among their numbers are to be found, not only skilled practitioners, but scientists, economists, and citizens, who have unselfishly devoted their lives to the welfare of their fellow men. The inadequate medical curricula of 1847 have been expanded and enriched, not only with a wealth of scientific material developed in the modern colleges and universities, which are the pride of every state, but the men of the Association have also devoted themselves to the principles of government that still provide freedom for the individual.

It would be inappropriate to attempt here an enumeration of the modern methods now employed in the treatment of disease. Suffice it to say that we no longer dread the scourge of the "Black Death," bubonic plague, or the host of other infectious diseases that have in times past threatened civilization.

Even in those uncharted seas which lie ahead, the dread of cancer, the fear of tuberculosis, and the burden of the diabetic lie within the realm of possible relief solely because the men charged with the responsibility of guiding the American Medical Association have not deviated from their purpose to serve mankind unselfishly.

To the members of the American Medical Association, who are this year celebrating a century of progress, the AMERICAN PHARMACEUTICAL ASSOCIATION offers its tribute of respect and esteem.

A CHALLENGING DISCUSSION OF THE PRESENT NEEDS OF PHARMACY FOR EXTENDING ITS SCOPE OF SERVICE AND FOR TRAINING ITS PRACTITIONERS

by ARTHUR F. PETERSON†

# FOR MODERN PHARMACY . . . NEW OBJECTIVES IN EDUCATION*

EDUCATIONAL requirements for most professions have been progressively increasing. Pharmacy is no exception. However, the conception of educators, generally, of what constitutes pharmacy has been so much limited to retail pharmacy that pharmacists, to a great degree, have been crowded out of certain areas of their own profession. The result has been that, essentially, students have been prepared for only one branch of the industry, the retail branch, with a further consequence that there is an over abundance of retail pharmacists, many more than are necessary to serve adequately the public health requirements.

Some interests among those whose livelihoods are gained within the pharmaceutical industry have, particularly during the past few years, been pointing with great alarm to the so-called "shortage" of pharmacists in retail practice. Steps have been taken to increase the enrollments in our colleges of pharmacy, both to "save" some colleges and to reverse the growing pharmacist "shortage."

Such measures, it seems to me, affect pharmacy as a profession adversely and would appear to have for their objectives (1) the retaining and introduction of as many side lines as possible in drugstores or pharmacies, (2) encouraging the establishment of still greater numbers of so-called drugstores so that manufacturers and wholesalers of sundry merchandise might obtain more counterspace for display of their nonpublic-health merchandise to the public, and (3) increasing the number of pharmacists engaged in retail practice to the point where the supply will be in still greater excess of the public health requirements.

From a strictly pharmaceutical point of view, such objectives, in my opinion, are diametrically opposed to the creation of a healthy, vigorous bona fide profession which we call pharmacy. The objectives of pharmacy and pharmaceutical education must not be permitted to be influenced adversely whereby the progressive trend toward higher educational and professional standards would be retarded or reversed to the disadvantage and commonality of the areas of pharmacy as a profession.

From the point of view of pharmacy as a scientific profession, why should drugstores or pharmacies sell such nonpublic-health goods as nonsurgical hardware and electrical goods, soft drinks, foods, tobaccos, and other assorted products which have no essential relationship to the profession of pharmacy? *Pharmacists want to get back to pharmacy but they cannot do so completely while the existing, uneconomic, unwarranted number of registered pharmacists in retail activities is out of proportion to the public health requirements.*

The situation may be partly corrected when the students in colleges of pharmacy are provided the opportunity to prepare for other branches of the industry which have until the present been almost totally disregarded by educational lead-

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* Condensed from a paper presented before the Pharmacy Subsection of the American Association for the Advancement of Science, December 28, 1946, Boston, Mass. As originally presented, additional emphasis was placed on the need for a specialized curriculum in pharmaceutical engineering. For a detailed discussion of this specialized field refer to the *American Journal of Pharmaceutical Education*, IX: 176 (April), 1945 and XI: 18–33 (January), 1947.

† Sales manager, Biologics Division, Heyden Chemical Corp., New York 1, N. Y.

ers. One reason for this condition, I believe, may be that educators who have had to do with the establishment or revision of curricula, or I should more properly say the curriculum, have not sought the advice and opinions of properly qualified representatives of the various branches of the pharmaceutical industry to determine adequately what are the current much less the prospective educational requirements for suitable training of personnel who may be best qualified for the ultimate job to be done.

## The Broad View

Educational leaders should think in terms of pharmaceutical progress for the industry as a whole. Some are advocating a minimum five-year course, that is a two-three plan, for pharmacy graduation. There is, in my opinion, real justification for it.

That plan would enable students to choose and pursue professional courses of their choice after ample time for observation and mature deliberation. The five-year course, that is, two year prerequisite plus three years professional, is increasingly necessary as a minimum because of the progressively greater demands upon the pharmacist by the medical profession for scientific information.

I expect, in fact, to see before long one of our outstanding pharmacy colleges go on a two-four basis, that is, two years prerequisite and four years professional, as its standard pharmacy course. The dean's idea is that pharmacy students need better educations before being admitted to a well-planned four-year professional course. If it is good for physicians, it is good for pharmacists; certainly if it is advantageous for physicians, it is advantageous for pharmacists. I urge all of you to read the article entitled "The Road Ahead in Pharmacy Education"[§] by Dr. H. Evert Kendig, dean, Temple University School of Pharmacy, Philadelphia; also his speech before the New Hampshire Pharmaceutical Association, September 16, 1946, entitled "Pharmaceutical Education for the Future."[†]

More and more the professionally minded pharmacist is becoming or is required to be a consulting pharmacologist. That is as it should be. In many instances that is as important a phase of his practice as compounding, yet some pharmacy colleges, at least, do not teach pharmacology of medical college grade.

*The pharmacist, whose title implies an expert in the knowledge of drugs, should have equally as good a knowledge of the pharmacology of drugs as does the physician, but of course the pharmacist should know more drugs, all drugs. That is his profession.* That implies a prerequisite of physiology and gross anatomy of medical college grade.

The two-three or two-four course in pharmacy should and would enable graduates to enter directly the study of medicine. A certain percentage usually make up their minds to do so about the time they graduate from pharmacy, or a year or two thereafter. They should not be "saddled" with the handicap of inability to qualify for the premedical requirement after completing a standard course in pharmacy, which is so closely allied with the practice of medicine. They cannot as a rule meet medical school entrance requirements today because they do not have all the prerequisites, a deficiency that seems to me unfortunate. I do not mean to turn pharmacy colleges into premedical training schools but I do say that the prerequisites for medical college entrance should be found within the pharmacy curricula.

*The more pharmacy graduates who subsequently study and graduate in medicine, the closer will the two professions be bound to each other, and obviously the better will be the understanding, the interprofessional relations, and the cooperation between the two. Therefore pharmacy graduates who are so inclined should be encouraged to consider the study of medicine. Pharmacy should be well represented in all branches of endeavor where pharmaceutical knowledge is an asset.*

## Exploring the Literature

In that connection, I think pharmacy students should have a good introduction into the reading or study of medical literature. Certainly they should have a good acquaintanceship with the *Journal of the American Medical Association.* That should be developed over the full span of the years of college attendance. It will help to prepare them for their every day practical contacts with physicians, which is so important to the success and real professional attainment of the present-day pharmacist and especially of the pharmacist of tomorrow. In how many pharmacies and drugstores does one find the *Journal of the American Medical Association*? How many pharmacists subscribe to it? How many pharmacists know they are permitted to subscribe to it? The subscription price is $8 per year for 52 weekly issues, less than $0.16 per issue. (The column on "Tonics and Sedatives" is worth more than that!) How many pharmacists have medical diction-

§ *The Merck Report*, July, 1945.
† *Am. J. Pharm. Ed.*, XI: 33 (Jan.), 1947.

aries to aid them in the reading and studying of medical literature?

The reading or studying of the A.M.A. *Journal* will help the pharmacist to discuss medical cases with the physicians who come to him for information on new or old drugs, and some to discuss or talk about medical cases. Not that the pharmacist is going to advise physicians how to practice medicine, but it does help to make better and more understanding conversation between them which obviously brings people closer together since it makes them feel they have a great deal more in common. *While pharmacy is not a branch or division of medicine, the two professions are probably more interdependent than any other two professions. For that reason, pharmacists should be able to speak well the physicians' language.* Regular reading of the *Journal of the American Medical Association* will do an immeasurable amount of good toward attaining that objective.

## What Are Our Needs?

Many pharmacy colleges today are overcrowded or at least filled to the limit of their capacity, preparing students for retail pharmacy only, an already over-crowded branch of the pharmaceutical profession. Thus they have the moral responsibility of preparing students for a branch of a profession in which, as such, most of them will be unable to gain a livelihood without resorting to the sales promotion of merchandise unrelated to the practice of pharmacy or of medicine.

In 1945, it is said, there were about 315,000,000 prescriptions filled in the United States. There were about 82,000 licensed pharmacists, about 12,000 of whom are normally in other than retail pharmacy. Thus only about 15 prescriptions are filled per pharmacist per day, six days per week, not counting pharmacists engaged in other than retail and hospital pharmacy. A pharmacist can easily fill 50 to 60 average prescriptions per day. On this basis there are at least three times too many pharmacists for that single purpose, but, for the sake of conservatism, let us say that there are at least twice too many, so as to allow pharmacist proprietors a little time for executive duties and the other pharmacists some time to sell other public health supplies to patients, and medical supplies to physicians, dentists, and veterinarians.

If we may accept the reasonable assumption that the *average* pharmacy should maintain three pharmacists, including the proprietor, *then about 24,000 drugstores would absorb all the pharmacists engaged in retail pharmacy in the United States, whereas, in 1945 there were approximately 52,000 pharmacies and so-called drugstores. This would indicate that there are at least twice too many drugstores.* The over-abundance of so-called drug stores is particularly apparent in larger cities, but exists in practically every town of two or more drugstores as distributed today.

Let us divide 315,000,000 prescriptions among 24,000 drugstores. On a six-day week basis that would be 44 prescriptions per drugstore per day. Obviously 44 prescriptions per drugstore per day are not sufficient to justify the services of three pharmacists, in fact should require scarcely one pharmacist's time. So again, on a prescription basis there is the indication that there is an over-abundance of retail pharmacists.

Assuming that 24,000 drugstores should confine their activities solely to prescription compounding and filling, and the selling of drug products, sickroom or physicians supplies and related public health needs, they should do a yearly *minimum* sales volume of about $1,750,000,000 to $2,000,000,000 without apprentice assistance. During the year 1945 the total volume of sales in drugstores, of drug and truly related health products only, was approximately $1,285,000,000 while total sales of all such products in all types of retail outlets was approximately $2,000,000,000.[1] That includes toilet soap sales.

*It is therefore readily seen that 24,000 drugstores mentioned above, each employing an average of three pharmacists, could easily handle more than the total purely prescription, drug, sickroom and physicians supplies and related public health products demanded by the total population of the United States in 1945. That again indicates that there is an over-abundance of establishments labeled drugstores, and too many drugstore pharmacists.*

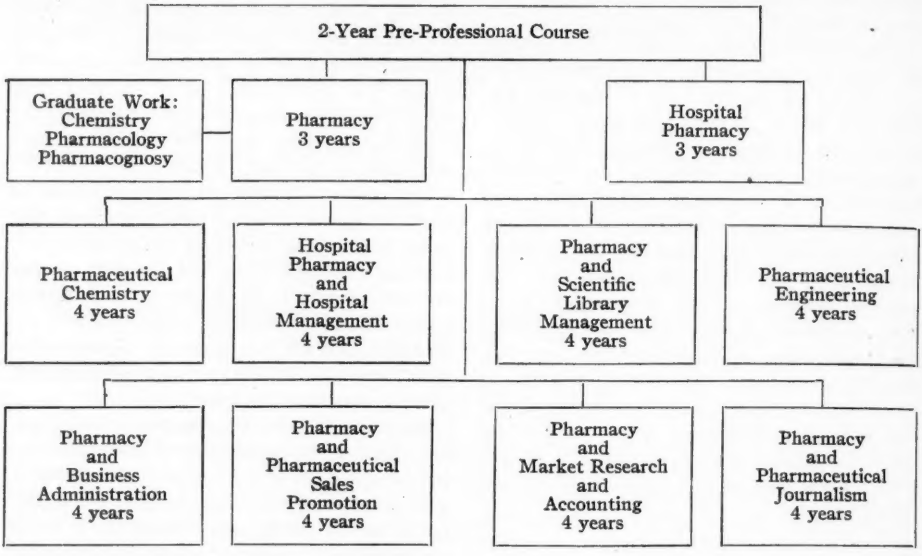
Further evidence is the fact that approximately 75% of the prescription practice is said to be done by approximately 10% of the pharmacies and drugstores[2] and about 95% by 40%, respectively.

## An Answer: Specialization

It is apparent then that it is to the best interests of prospective students, pharmacists, colleges of pharmacy, and the pharmaceutical profession as a whole, that colleges of pharmacy de-emphasize preparation for retail pharmacy and instead direct or guide as many suitable students as possible into pharmaceutical curricula leading to specialization in other branches of the pharmaceutical industry.

There are 69 colleges of pharmacy in the United

OUTLINE OF SUGGESTED SPECIALIZED CURRICULA FOR MODERN PHARMACEUTICAL EDUCATION


2-Year Pre-Professional Course
Graduate Work: Chemistry Pharmacology Pharmacognosy
Pharmacy 3 years
Hospital Pharmacy 3 years
Pharmaceutical Chemistry 4 years
Hospital Pharmacy and Hospital Management 4 years
Pharmacy and Scientific Library Management 4 years
Pharmaceutical Engineering 4 years
Pharmacy and Business Administration 4 years
Pharmacy and Pharmaceutical Sales Promotion 4 years
Pharmacy and Market Research and Accounting 4 years
Pharmacy and Pharmaceutical Journalism 4 years

States, one college to approximately 1200 registered pharmacists, while there are 70 medical colleges, one college to approximately 2700 physicians. Obviously there are too many colleges of pharmacy, on the basis of the present range of curricula.

Colleges of pharmacy should not, in my opinion, limit their training so as to be suitable, essentially, for only one branch of pharmacy. The requirements of the manufacturing branch of the industry, where about 70% of the pharmaceutical compounding is done and by whom a good proportion of the promotional work is carried on, appears to have been overlooked to a very great degree. In fact some educators have discouraged students from thinking of engaging in other than retail practice. As a result, manufacturers have had to look to schools of chemistry and chemical engineering to supply the scientific personnel.

## A Closed Door

Thus pharmacy colleges have not only in a great measure closed the door to pharmacists where the greatest proportion of the profession of pharmacy is being practiced in a highly scientific manner, but have likewise closed the door to innumerable grants and scholarships for research work, to say nothing of bequests, which have gone instead to schools of chemistry and of medicine.

They have given too little thought to the preparation of pharmacists for the professional service and sales work carried on by manufacturers, for executive positions wherein a pharmaceutical education is advantageous, for production and research positions, for editorial positions with pharmaceutical journals, or for executive positions with advertising agencies handling pharmaceutical accounts.

There are many pharmacy graduates who are executives, salesmen, or professional service pharmacists (representatives) associated with the several hundred wholesale druggists and the many pharmaceutical manufacturers in the United States. Here is an important sphere of influence and a source of a great many splendid opportunities. Pharmaceutical educators should encourage graduates to seek those opportunities after they have had some retail pharmacy experience which is desirable.

Pharmacy colleges are very influential. They have on the whole done a splendid job so far as they have gone. As a group, they have for a number of years been stressing hospital pharmacy and professional retail pharmacy operations. Hospital pharmacies have been increasing greatly in number during the past few years especially, and have gained much and enviable prestige with the medical profession and the public. The same can be said about the exclusive prescription pharmacies, frequently referred to as professional pharmacies, which are rapidly garnering the prescription and other professional pharmaceuti-

(*Continued page 282*)

# A. PH. A. PLANS MILWAUKEE MEETING

EXTENSIVE plans are under way for the 1947 annual convention of the AMERICAN PHARMACEUTICAL ASSOCIATION in August. Headquarters will be at the Schroeder Hotel in Milwaukee, Wis. Each member of the ASSOCIATION will soon receive a communication regarding hotel rates, reservation procedure and tentative program. Railroads will doubtless communicate with members in various sections of the country regarding means of transportation although so-called "special" or "convention" rates have not been resumed in most instances.

The plan of providing reservations in the order received, through the housing bureau of the local Chamber of Commerce proved so successful last year that a similar procedure has been worked out with the Milwaukee Association of Commerce.

The 1947 convention of the A. PH. A. and related organizations will cover the full week of August 24, but A. PH. A. meetings will not get under way until Tuesday evening, August 26, with the first session of the House of Delegates. General sessions, meetings of the House of Delegates and section meetings are scheduled for Wednesday, Thursday, Friday, and Saturday morning, August 27, 28, 29, and 30.

The American Association of Colleges of Pharmacy will begin its meetings on Sunday August 24, and continue until late Tuesday afternoon, August 26.

The National Association of Boards of Pharmacy begins its sessions on Monday morning, August 25, and continues until late Tuesday afternoon, August 26.

The American Society of Hospital Pharmacists and the American College of Apothecaries will hold their separate meetings on Monday and Tuesday, August 25 and 26.

The Conference of Pharmaceutical Association secretaries is arranging its program so as to avoid interference with meetings of other groups of which the state secretaries are also members.

The annual banquet of the AMERICAN PHARMACEUTICAL ASSOCIATION and affiliated and related organizations is scheduled for Thursday evening, August 28. It will be followed by the President's reception and a dance.

The Women's Auxiliary will hold its annual meeting on Thursday morning, August 28.

The usual special breakfasts, luncheons, and dinners of various fraternities and other groups are being scheduled and members desiring to make such arrangements should communicate promptly with the Secretary of the A. PH. A., as the scheduling of such affairs is limited by the headquarters hotel facilities. Last minute arrangements are always difficult.

The tentative program for the convention week, subject to change, follows. Meetings of various committees, councils, conferences and breakfast, luncheon and dinner meetings are not included.

**Sunday, August 24, 1947**

AFTERNOON

Meeting of the American Association of Colleges of Pharmacy

**Monday, August 25, 1947**

MORNING

Teachers' Conferences

MORNING AND AFTERNOON

Meetings of the National Association of Boards of Pharmacy
Meetings of the American College of Apothecaries
Meetings of the American Society of Hospital Pharmacists

AFTERNOON

Meeting of the American Association of Colleges of Pharmacy

EVENING

Joint Dinner, American Association of Colleges of Pharmacy and National Association of Boards of Pharmacy

**Tuesday, August 26, 1947**

MORNING AND AFTERNOON

Meetings of the American Association of Colleges of Pharmacy
Meetings of the National Association of Boards of Pharmacy
Meetings of the American College of Apothecaries
Meetings of the American Society of Hospital Pharmacists

EVENING

First Session, House of Delegates, AMERICAN PHARMACEUTICAL ASSOCIATION

**Wednesday, August 27, 1947**

MORNING

First General Session, A. PH. A.

AFTERNOON

Second Session, House of Delegates
Section Meetings, A. PH. A.

EVENING

Entertainment

**Thursday, August 28, 1947**

MORNING

Second General Session, A. PH. A.

AFTERNOON

Section Meetings, A. PH. A.

EVENING

Annual Banquet

**Friday, August 29, 1947**

MORNING

Third Session, House of Delegates, A. PH. A.

AFTERNOON

Section meetings, A. PH. A.

EVENING

Fourth Session, House of Delegates

**Saturday, August 30, 1947**

MORNING

Final General Session, A. PH. A.

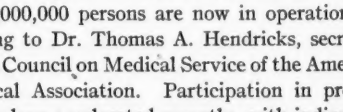
AFTERNOON

Meeting of the Council, A. PH. A.

Additional information and a detailed program will appear later in THIS JOURNAL.

### Plant Science Seminar

Those with special interests in pharmaceutical botany and pharmacognosy will also want to attend the 24th annual Plant Science Seminar to be held in Chicago, August 17 to 23, the week preceding the Milwaukee convention. The University of Illinois College of Pharmacy will be host to the Seminar. Here are well-equipped pharmacognosy laboratories for collaborative laboratory work and demonstrations, and a 51-acre Drug Plant Experiment Station is under construction nearby. Included in the Seminar program will be a botanical excursion to Morton Arboretum and visits to the Chicago Natural Museum, Garfield Park Conservatory, and Abbott Laboratories.



## VOLUNTARY HEALTH INSURANCE NOW ACCEPTED BY 33 STATES

More than 80 voluntary health insurance plans sponsored by medical societies in 33 states covering 4,000,000 persons are now in operation, according to Dr. Thomas A. Hendricks, secretary of the Council on Medical Service of the American Medical Association. Participation in prepayment plans accelerated recently, with indications that enrollment will reach 5,000,000 in 1947.

Since the insurance program is still experimental, the Council hopes to encourage all types of plans that meet the minimum requirements set by the Council to maintain an adequate standard of medical service. The Council is now set up to encourage the development of new plans, to keep the profession informed as to developments, and to help increase the enrollment of plans already established.

# SYSTEMIC ALKALIZERS

by GEORG CRONHEIM and CHARLES F. BULLOCK

IN DRUG therapy it is frequently desirable to shift the *p*H of urine from the acid to the alkaline side. Frequently this change is achieved by the oral administration of sodium bicarbonate. There are, however, several drawbacks to this drug, most important of which is its alkalinity. To act as a systemic alkalizer sodium bicarbonate must reach the intestinal tract. This is possible only after the acid in the stomach has been neutralized, which results in a temporary retardation or inhibition of the proteolytic action of the pepsin. In addition, the alkalinity of sodium bicarbonate makes it incompatible with many other drugs, particularly in liquid preparations. To avoid this disadvantage of sodium bicarbonate considerable attention has been given to so-called systemic alkalizers.

A systemic alkalizer may be defined as an alkali salt of an organic acid that does not materially change the *p*H of either the gastric or intestinal fluids, that is readily absorbed from the gastrointestinal tract, and the acid part of which is readily and completely oxidized in the system to carbon dioxide and water. This leaves the sodium ions free to combine with the bicarbonate ions from tissue metabolism and to exert an alkalizing action.

There are a number of organic salts that fulfill these requirements, such as sodium acetate, lactate, citrate and others. Aside from general information on these salts as systemic alkalizers, we were unable to find any figures indicating their relative efficacy. In recent publications where the use of systemic alkalizers was advocated in connection with sulfonamide therapy, the assumption was made that sodium citrate and sodium lactate are just as effective as sodium bicarbonate if they are used in equimolar quantities.

To test this assumption and to investigate some other sodium salts heretofore not used as systemic alkalizers, the present study was carried out. Several dogs of approximately 7.5 Kg. each were kept in individual cages and fed their usual diet of dog pellets. In addition each dog received 50 Gm. of ground meat twice daily. The collected urine was preserved with thymol and the *p*H was determined on morning and afternoon samples. After rest periods of one week, each of the various sodium salts were given mixed with the ground meat for one week, as indicated below:

| Sodium Salt | Daily Amount | *p*H of a Solution Containing the Daily Amount in 100 Ml. |
|---|---|---|
| Sodium bicarbonate ($NaHCO_3$) | 1.50 Gm. | 8.20 |
| Sodium citrate ($Na_3C_6H_5O_7 \cdot 2H_2O$) | 1.64 Gm. | 7.60 |
| Sodium lactate ($NaC_3H_5O_3$) | 2.00 Gm. | 7.10 |
| Sodium succinate ($Na_2C_4H_4O_4 \cdot 6H_2O$) | 2.42 Gm. | 8.65 |
| Sodium malate ($Na_2C_4H_4O_5 \cdot {}^1/_2H_2O$) | 1.68 Gm. | 6.95 |

These amounts are all equimolar to 0.2 Gm./Kg. daily of sodium bicarbonate.

A typical experiment is summarized in the following table. The results with other dogs were all of the same order.

| Salt Added | Average *p*H of Urine |
|---|---|
| ..... | 6.6 |
| Sodium bicarbonate | 7.5 |
| Sodium citrate | 7.6 |
| Sodium lactate | 7.3 |
| Sodium succinate | 7.4 |
| Sodium malate | 7.3 |

It can be seen that all the sodium salts used act as systemic alkalizers. It is doubtful whether much importance should be attached to the small differences in the average *p*H values of urine after administration of the individual sodium salts. Such differences are possibly due to varying small amounts of the free acids that are excreted. The shift in the *p*H of the urine indicates that the organic acids in the various salts used are completely oxidized, or nearly so, while passing through the organism. That such a conclusion cannot be drawn simply from the chemical formula of an acid is best shown by glucuronic acid. According to Chenoweth *et al.*,[1] this acid is excreted unchanged in amounts large enough to acidify the urine.

The fact that some of the investigated alkali salts are sufficiently hydrolyzed in aqueous solutions to have a distinctly alkaline reaction is of some practical importance. By combining the salts with their corresponding free acids one can obtain buffer solutions with a *p*H below 7, which

From the Research Department of The S. E. Massengill Company, Bristol, Tenn.

is preferable and often essential for pharmaceutical preparations. Since the acids are completely oxidized, the efficacy of these buffers as systemic alkalizers is practically the same as that of the sodium salts alone.


## Summary

The action of sodium bicarbonate, citrate, lactate, succinate and malate as systemic alkalizers has been determined in dogs. On an equimolar basis the efficacy of all these salts is practically the same.

Some of the alkali salts investigated may be used to form systemic alkalizers with a *p*H below 7.


### REFERENCES


1. Chenoweth, M. B., Civin, H., Salzman, C., Cohn, M. and Gold, H., *J. Lab. Clin. Med.*, 26, 1574(1941).

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# FIRST INTERIM ANNOUNCEMENT

# NATIONAL FORMULARY, EIGHTH EDITION

**National Formulary VIII**

**N. F. VIII**

Prepared by the Committee on National Formulary
Under the Supervision of the Council

By Authority of the

AMERICAN PHARMACEUTICAL ASSOCIATION

*OFFICIAL FROM APRIL 1, 1947*

The temporary continuation of the provisions of the first three supplements to the *Seventh* Edition of the National Formulary relating to replacements of unobtainable or scarce drugs or pharmaceutical necessities and the use of alternative preparations is hereby authorized.

Such authorization is necessitated by the fact that the scarcity of drugs and pharmaceutical necessities existing at the time of the issuance of these supplements to National Formulary VII, continues in many respects.

The AMERICAN PHARMACEUTICAL ASSOCIATION has been assured by the Food and Drug Administration that, pending the issuance of a First Supplement to N. F. VIII, this announcement will be accepted as authority for continuance of the deviations from formulas provided for in the first three supplements to N. F. VII. The AMERICAN PHARMACEUTICAL ASSOCIATION has been assured further that the Food and Drug Administration will inaugurate no legal actions solely because of the use of replacement ingredients authorized in Supplements to N. F. VII for a reasonable period of time, pending issuance of the First Supplement to the Eighth Edition of the National Formulary.

Committee on National Formulary
Justin L. Powers, *Chairman*

Council of the American Pharmaceutical Association
Robert P. Fischelis, *Secretary*

## SURGEONS GENERAL VIEW

# ARMY-NAVY PHARMACY OF FUTURE

**BLISS AND SWANSON ON RECORD WITH PLANS TO IMPLEMENT PHARMACEUTICAL SERVICE, AS NEW BILL COVERING BOTH SERVICE BRANCHES REACHES HOUSE FLOOR...ORGANIZED PHARMACY WITHHOLDS OPPOSITION**

A NEW bill (H.R. 3215) that includes revised plans for providing pharmaceutical service in both the Army and Navy was introduced in Congress on April 25. Previously there had been hearings on an earlier bill to set up a Medical Service Corps in the Army (H.R. 1982), including a Pharmacy Section to replace the Pharmacy Corps, and also on a Navy bill (H.R. 1361) that included provisions relating to commissions for pharmacists and the administrative plan for pharmaceutical service.

The new turn of events came when the prospect of legislation merging the armed services made it apparent that analogous plans for the Army and the Navy were desirable. The current bill, as far as it affects pharmacy, represents conclusions reached by a subcommittee of the House Committee on Armed Services, following eight public hearings.

At each of the hearings pharmacy was represented by members of the Committee on Status of Pharmacists in Government Service, and several of its members gave testimony. The Committee objected to the proposed Medical Service Corps on four points and later conferred with the Surgeon General to work out suitable amendments (see February issue page 56). However, the resulting concessions from the Surgeon General were not included by the Congressional subcommittee in the new bill, H.R. 3215.

In general, it follows the plan of the previous Medical Service Corps bill. Title I and Title II, which relate to pharmacy, set up separate Medical Service Corps in the Army and the Navy, with practically the same provisions as to personnel. The Army Medical Service Corps would consist of a Pharmacy, Supply and Administration Section, a Medical Allied Sciences Section, an Optometry Section, and such other sections as may be deemed necessary by the Secretary of War. An analogous organization is provided for the Navy.

Army officers would be commissioned in the rank of second lieutenant to colonel, inclusive. Each of the sections is headed by a chief, who shall be the consultant to the Surgeon General in activities relative to that specific section.

Navy officers would serve in the grades of ensign to captain. There is no provision for section chiefs in the Navy Corps because Navy organization, unlike the Army, requires that all sections come under bureaus headed by medical officers.

Education requirements for officers to be commissioned in either the Army or Navy Medical Service Corps as pharmacists, from outside the Regular Army or Navy, are graduation from a four-year course in pharmacy leading to the Bachelor of Science degree.

The provisions of H.R. 3215 appear to offer further opportunities for improving pharmaceutical service in the Navy beyond those originally negotiated and accepted by the Committee on Status of Pharmacists in Government Service. But provisions to meet objections seen in the previous Army Medical Service Corps bill were not deemed suitable for writing into the new bill, since the Congressional view is that these should be covered by regulations. In view of this the Steering Committee of the Committee on Status of Pharmacists in Government Service requested written statements from the Surgeons General of the Army and Navy concerning their objectives for acquiring and using pharmacists of commissioned rank. These important statements, clarifying administrative plans under the proposed law, are reproduced below in full. (The statement from the Army is signed by Gen. Bliss who succeeds Gen. Kirk as Surgeon General on June 1.)

The House subcommittee referred H. R. 3215 to the full Committee on Armed Services with a favorable recommendation. The full Committee has approved the bill and sent it to the House of Representatives with a recommendation that it be passed. Meanwhile, after considering the new developments—in relation to the bill, the record of the hearings and the written statements of the Surgeons General—the Committee on Status of Pharmacists in Government Service decided by a majority vote not to oppose this legislation.

# A STATEMENT FROM THE SURGEON GENERAL OF THE ARMY

9 May 1947

Major Arthur H. Einbeck, Chairman
Committee on Status of Pharmacists
in the Government Service
6024 Bergenline Avenue
West New York, New Jersey

Dear Major Einbeck:

This letter will serve to confirm my answers to the questions which the members of your committee raised in your conference with me on Tuesday, May 6, with reference to H.R. 3215.

You asked whether the Chief of the Pharmacy, Supply and Administration Section is to be a pharmacist. I replied that as far as this office is concerned there never was any question as to the policy regarding this appointment. We have already selected a Pharmacy Corps officer who holds the degree of Bachelor of Science from an accredited college of pharmacy to head this section, if and when H. R. 3215 is passed. It is the policy and intention of this office to have the Pharmacy, Supply and Administration Section of the Medical Service Corps headed by a qualified pharmacist who is a graduate of the four-year course in pharmacy and holds the Bachelor of Science degree. This officer will also serve as consultant to The Surgeon General on pharmacy matters.

You asked what the qualifications of the pharmacists, who are to be commissioned in the Pharmacy, Supply and Administration Section, are to be, and I replied that the commissioned officers who will be assigned to supervise pharmaceutical activities and who are to carry out the pharmaceutical duties in the Medical Service Corps will be required to be Bachelors of Science in Pharmacy from accredited colleges of pharmacy. It is our firm intention to require at least the same qualifications for the supervision of pharmaceutical duties in the Army as are required in the practice of civilian pharmacy.

You asked what the composition of the Pharmacy, Supply and Administration Section will be in the course of time. I replied that the Pharmacy, Supply and Administration Section of the Medical Service Corps, as ultimately developed, will consist primarily of pharmacists who are graduates of accredited colleges giving the Bachelor of Science degree. I pointed out that under the present integration program, there are a considerable number of officers who were previously commissioned in the Medical Administrative Corps, the Sanitary Corps, and the Pharmacy Corps who will be transferred to the Medical Service Corps and that a relatively large percentage of these will be assigned to the Pharmacy, Supply and Administration Section, but that the annual increments from outside the Regular Army to the Pharmacy, Supply and Administration Section will be almost exclusively graduates of accredited colleges of pharmacy, if they are available, because their basic training makes them most adaptable for the auxiliary medical services requiring technical supervision. Obviously, the Medical Department of the Army must be ready to function at all times, and if we are unable to obtain a sufficient number of pharmacists from civilian sources, it will, of course, be necessary for us to develop our own personnel. It is in this phase of the development of the Medical Service Corps that we particularly require the cooperation of pharmaceutical organizations and educational institutions.

You asked me to specify the duties of pharmacists in the Medical Service Corps and especially in the Pharmacy, Supply and Administration Section. I replied that I am in complete agreement with the outline of duties planned for Pharmacy Corps officers, as set forth in the press release from the War Department dated July 5, 1946, and a copy of this release is attached.* I now wish to assure you that it shall be my policy to effectuate as completely as possible the letter and spirit of the blueprint of duties of pharmacy officers as set forth in the foregoing press release.

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* The statement referred to reads as follows:

**Additional duties for pharmacists in the Army Medical Department have been outlined in plans submitted to the War Department General Staff by Major General Norman T. Kirk, The Surgeon General.**

**In General Kirk's plan legislation will be sought to organize a Medical Service Corps which will place Pharmacy, Sanitary and Medical Administrative corps under one table of organization. Provisions are made for a pharmacist officer to serve in the Office of The Surgeon General. That officer will act as adviser to The Surgeon General on all pharmacy matters and will direct pharmaceutical activities of the Medical Department.**

**Utilizing pharmaceutical training and aptitudes to the utmost, pharmacist officers will be charged with the purchase, examination, shipment, storage and standardization of the drugs and medical supplies required by the Army. They will coordinate the preparation of Supply Tables and aid in preparation of standards of drugs and medical supplies.**

**In command functions, they will be placed in charge of all types of Medical Supply depots as well as subordinate positions in the depot. And they will be named assistants to surgeons in battalions and regiments, as commanders of headquarters and medical battalion units, adjutants, medical and general supply officers and laboratory officers in Medical and General laboratories.** *(Continued bottom next page.)*

In our discussion, I suggested that we might wish to call upon a small number of members of your profession in an advisory capacity to assist us in formulating sound policies with respect to the future development of our pharmaceutical service, the procurement of supplies and personnel, and such other matters as may pertain to the good of the service and the advancement of your professional group, and I shall look to your committee to give us a list of names of competent persons from which a selection of pharmacy consultants will be made.

In regard to your questions relative to a Medical Service Corps Reserve, we contemplate a most active Reserve of the Medical Service Corps, which should be most beneficial to graduate pharmacists. It is not necessary that H.R. 3215 establish a Reserve Component as that authority presently exists under the National Defense Act, by authorizing Reserve Components of Regular Army Corps, as is presently the case with the Medical and Dental Corps. It is anticipated that graduates of senior Reserve Officers Training Corps units with B.S. degrees in pharmacy will on graduation be commissioned in the Pharmacy, Supply and Administration Section of the Medical Service Corps Reserve. Of course they must meet the other necessary requirements and be properly recommended and desire such commission. I visualize that this group of young men will help to make the Medical Service Corps Reserve something in which the Army and the profession of pharmacy will take pride. We hope that as many as possible of your pharmacy graduates will avail themselves of this opportunity.

In our conference, the recently published War Department Circular 101 was discussed briefly and some elaboration should be given for proper understanding. Pertinent features of this circular as it applies to pharmacists and the Medical Service Corps are as follows:

1. Provides means for appointment in the Officers Reserve Corps for graduates of senior Reserve Officers Training Corps programs and for persons possessing B.S. degrees in pharmacy from accredited schools who are otherwise qualified.

2. Provides means for appointment in the Regular Army from honor graduates of senior Reserve Officers Training Corps units (21–30 yrs. of age).

3. Provides means for appointment in the Regular Army from commissioned officers of the Officers Reserve Corps and National Guard, who have demonstrated their fitness by one year of extended active duty (21–30 yrs. of age).

4. Provides means for appointment in the Regular Army direct from civil life of persons holding B.S. degrees in pharmacy, between 21–30 yrs. of age by a professional exam, prepared and administered by the Surgeon General.

In any future emergency, the Medical Service Corps Reserve will be a most important source of trained, skilled officers who will be a potent factor in assisting the Medical Department in carrying out its mission.

As a matter of interest to your committee, I also informed you of certain recent actions relative to pharmaceutical service which have been taken by this office. A Central Therapeutic Agents Board has been appointed in the Office of The Surgeon General. It will be the responsibility of this board to study information submitted with a view to improving and standardizing operations, processes, and methods used by Army hospitals in applying the principles of theoretical pharmacy. Particular attention will be given to the establishment of policies on the supply of nonstandard agents for use in treating civilian dependents. Recommendations of the board will be prepared in directive form for Army hospitals for their information and guidance. The board will consist of the following or their duly authorized representatives:

Chairman, Army Medical Research & Development Board, *Chairman*
Chief, Medical Consultants Division
Chief, Surgical Consultants Division
Chief, Hospital Division
Chief of Supply

A Pharmacist member of the Surgeon General's Office will serve on this board.

Commanding officers of general hospitals have been directed to appoint Therapeutic Agents Boards in their hospitals for the purpose of making recom-

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*Footnote continued from bottom preceding page:*

No little part of their future duties will be instructing at training schools. Pharmacy officers will be especially sought in Regular Army commissioned ranks for duty in the postwar Army which will require three officers of their capabilities for every thousand men.

It is thought that additional duties given pharmacists will release other Medical Department officers from administrative duties.

Further, pharmacists will be qualified to serve in multitudinous hospital capacities as pharmacy officer, executive officer, adjutant, supply officer, mess officer, registrar, evacuation officer, hospital detachment commander and detachment of patients commander. They will compound and dispense medicines in units as large as General Hospitals and Hospital Centers.

In combat organizations, the pharmacists will assume more authority than ever before. They will serve as medical and general supply officer, to medical groups and battalions and command ambulance units.

In procurement jobs they will deal with contracts, purchase, inspection, shipment, storage, testing and standardization of medical equipment. Further, pharmacists are playing vital roles in administrative positions in the Office of The Surgeon General.

General Kirk stated that pharmacy officers will receive the same pay, emoluments and retirement benefits as other officers of similar grade and length of service of the Regular Army. Promotions in field grades will, as in the case of other branches, be consistent with the needs of the service.

mendations relative to the local purchase of non-standard drugs and biologicals to be used by the hospitals. Each board will consist of not less than three officers to include the Chief of Medical Service, the Chief of Surgical Service and an officer of the Pharmacy Corps who is a registered pharmacist.

The commanding officer of each general hospital has been directed to appoint a Pharmacy Corps officer who is a registered pharmacist as the officer in charge of the pharmacy. It is anticipated that later this may be extended to include the larger station hospitals.

It is my conviction that the passage of H.R. 3215, which will create a Medical Service Corps in the Army, will provide much better opportunities for constructive pharmaceutical service in the Army and for cooperative participation in supplying such service on the part of the pharmacists of the United States in much larger numbers than would ever have been possible under the Pharmacy Corps Act which this legislation supersedes.

I am encouraged by the offer of cooperation which I have received from your group and in turn I pledge you the interest and cooperation of the Medical Department of the Army in developing a pharmaceutical service for the Army, which will be outstanding in all respects and which will give the members of your profession who may be interested in a military career an opportunity for the full exercise of their professional training and ability. It was a pleasure to meet in conference with your committee and a helpful stimulus to mutual understanding and cooperation between military and civilian agencies for the betterment of the Armed Services.

*RAYMOND W. BLISS*
Brig. General, USA
Deputy Surgeon General†

# A STATEMENT FROM THE SURGEON GENERAL OF THE NAVY

9 May 1947

Major Arthur H. Einbeck, Chairman
Committee on Status of Pharmacists
in the Government Service
West New York, New Jersey
Dear Major Einbeck:

This letter is to confirm the salient points covered in my discussion with members of your committee who visited me on May 6, 1947. I emphasized that while I serve as Surgeon General of the Navy, it is my intention to use commissioned officers who are graduate pharmacists for the practice of pharmacy in the Navy, wherever the exigencies of the Naval service will permit. It is my intention to utilize commissioned graduate pharmacists in the teaching of pharmacy in our Hospital Corps Schools and in the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland. Our object of commissioning graduates of accredited colleges of pharmacy in the Naval service is to provide a better pharmaceutical service which these officers, by their education and training, are fully qualified to render.

If H.R. 3215 is enacted into law, it will give us authority to commission a number of college-trained pharmacists, with the Bachelor of Science degree, proportionate to the size of the Navy. These men will be assigned to pharmaceutical duties provided for in the organization of the Naval service, and we will assign a competent pharmacist to each of the Bureau chiefs dealing with problems involving the procurement, dispensing and general use of drugs or rendering other distinctly pharmaceutical services.

In the Medical Allied Sciences Section we will have places for men with a basic pharmaceutical training who have completed graduate studies leading to the degree of Doctor of Philosophy or Doctor of Science.

In building up our Pharmacy, Supply and Administration Section, we shall make full use of trained pharmacists for specific pharmaceutical services, and the annual increments from sources other than the regular Navy will be made up entirely of graduates of accredited colleges of pharmacy as far as the supply of men for strictly pharmaceutical duties are concerned.

In the development of this phase of the Medical Service Corps, we solicit the support of pharmaceutical organizations in the procurement of graduate pharmacists for both the regular Navy and the Naval Reserve.

To this end we expect to call upon members of your profession who are outstanding in their field to assist us in an advisory capacity, and I shall name one or more advisers from among competent persons whom your organization may suggest.

It is my conviction that the provisions of H.R. 3215 and the legislation which gives us the power to create reserves will bring about a more extensive and broader use of pharmacists in the Navy than we have had at any time in the past, and it shall be my endeavor to give the pharmacists who will be commissioned in the Navy and in the Reserve every opportunity to help build an outstanding pharmaceutical service.

*C. A. SWANSON*
Rear Admiral (MC), USN
Surgeon General, U. S. Navy

† To take office as Surgeon General June 1; see p. 285.

# A SURVEY OF NEW PRESCRIPTIONS COMPOUNDED

by FRANCES I. BLAIR* and ROY A. BOWERS†

**STATISTICAL APPROACH ADOPTED FOR PRESCRIPTION STUDY, DATA FROM TYPICAL PHARMACY SHOW FIFTH OF TOTAL COMPOUNDED**

A PRESCRIPTION survey was conducted to ascertain the ratio between compounded prescriptions and total new prescriptions being filled by a typical pharmacy.‡

The city in which this survey was conducted had a peacetime population of 13,000, a wartime total of 15,000. State and municipal establishments that could have affected the population and, subsequently, the prescription volume were an ordnance works, a city hospital employing no pharmacist, a state university and a business school. The pharmacy chosen for the survey is favorably located on the main street of the city in the business section. Both city and ordnance buses made regular stops at the intersection of streets where the pharmacy is located.

A description of the location of the pharmacy may be followed logically by a discussion of its personnel. The professional staff consists of three full-time registered pharmacists. Their helpers, the adult unlicensed clerks, number from one to three. The number of persons operating the soda fountain varies from week to week.

In addition to filling prescriptions, these pharmacists supply trusses and surgical appliances, maintain a large stock of baby foods, provide a station for the repairing of fountain pens, and stock cosmetics, candy, cigars and magazines.

The prescriptions that the three pharmacists filled were written by 134 physicians and two dentists. Twenty-four of the former practiced locally and 51 practiced in cities lying within a thirty-mile radius of the pharmacy. Forty-seven were state physicians and 12 were out-of-state. None of the prescriptions was signed by a veterinarian.

"Refilled" prescriptions were not included in the survey, for they were representative of past years, past economic conditions, etc. Only the newly written prescriptions were studied and classified in the following manner:

1. Narcotic prescriptions
2. Official prescriptions
3. Vitamin prescriptions
4. Sulfonamide prescriptions
5. Barbiturate prescriptions
6. Estrogenic prescriptions
7. Compounded prescriptions

Two of these seven classifications merit further discussion—official prescriptions and compounded prescriptions. To be considered official a prescription contained at least one U. S. P. or N. F. ingredient. Since the purpose of this report, however, is the consideration of compounded prescriptions, all remarks henceforth will pertain to class 7.

In the first place a compounded prescription was defined as either a mixture of two or more ingredients, such as

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Sodium bromide.....3vi
Aq. menth. pip.....3ii

or an extemporaneous preparation of a formula such as diluted hydrochloric acid U. S. P. The survey included those 10,000 prescriptions filled during a period of one year or 364 days.

On two days of the 364 (*see broken-line graph*) 44.5%§ of all prescriptions filled during each day were compounded. (Figures exceeding 45% are construed to be isolated instances and are not to be regarded as significant; however, they appear on the graph, for the presentation of a complete picture of the survey necessitates inclusion of such abnormalities.)

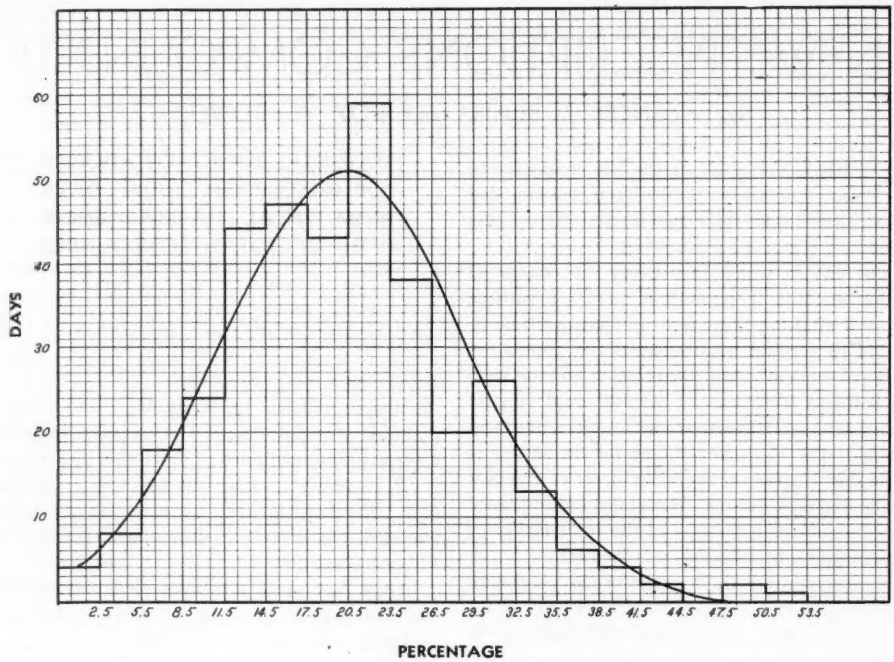
On four days only 2% of the new prescriptions were compounded. On fifty-nine days 20.5% to 23.5% were compounded. This third set of figures is the most important, for it approximates the arithmetic mean, which was calculated to be 20%. In other words, on 243 days (two-

* Instructor in pharmacy, University of Kansas.
† Associate professor of pharmacy, University of Kansas (at time of survey); now dean of the College of Pharmacy, University of New Mexico.

‡ It is conceded that there are various terms under which this survey could have been conducted, for the pharmacist may devote a major portion of his time to other and perhaps equally important professional services, such as serving as consultant to the physician, as a source of public health information, and as an intelligent dispenser of non-prescription health supplies, veterinary medicines and cosmetics.

§ The data were analyzed and calculations made by R. S. Howey, professor of economics, University of Kansas.

ACTUAL AND THEORETIC DISTRIBUTION CURVES FOR NEW PRESCRIPTIONS COMPOUNDED PER YEAR




thirds of the year) 20% or one-fifth—subject to further modification by the standard deviation—of all new prescriptions brought to the pharmacy were written to be compounded.

Naturally the arithmetic mean varied from day to day, so the standard deviation of the mean was calculated and found to be ±8.64%. Its importance may be explained as follows: The arithmetic mean varied; and when it did, it rose to 20 + 8.64 (28.64) or it fell to 20 − 8.64 (11.36). In a normal distribution two-thirds of the data fall between the limits imposed by the average plus one standard deviation and the average minus one standard deviation. It follows, then, that during two-thirds of the year the percentage of prescriptions that required compounding did not exceed 28.64% and did not fall below 11.36%.

It must be emphasized that these conclusions may not be considered valid unless the curve of the graph approximates that of a normal distribution. A theoretical distribution curve possessing the same average and standard deviation as that of the broken-line graph was calculated and superimposed upon the actual distribution curve. The similarity existing between the broken-line graph and the smooth-line normal frequency curve is remarkable, and mathematical tests have shown that the normal distribution curve truly describes the data obtained in this prescription survey.

In effect the theoretical curve describes the results that could be expected from a large-scale survey encompassing a number of years, rather than only one, and a much larger number of prescriptions. Therefore, it is highly probable that one-fifth of all new prescriptions filled in this pharmacy annually (under the conditions described) are compounded.

The national average may tend to differ with varying conditions such as those pertaining to population characteristics, climate, and age and training of both physicians and pharmacists.

RxRxRxRxRx

## A SUCCESSFUL EXPERIMENT . . .

# FIRST A. PH. A. DISTRICT MEETING

ON THE theory that national professional and scientific societies should carry their programs to members in districts far removed from the headquarters of these associations, the AMERICAN PHARMACEUTICAL ASSOCIATION is testing the recommendation of past president George Moulton, strongly endorsed by President Serles and the Council of the ASSOCIATION, that district meetings be held in convenient locations throughout the country.

It was fitting that National Pharmacy Week should be chosen by the AMERICAN PHARMACEUTICAL ASSOCIATION to experiment with this new service to pharmacists. Nearly 150 pharmacists from Nebraska, North and South Dakota, Iowa and Minnesota attended the first of these district meetings in Omaha on April 23. The program for this meeting was arranged especially for practicing pharmacists.

Dr. Earl R. Serles, president of the ASSOCIATION, presided. He welcomed the assembly and outlined the purposes of the district meetings. Following these introductory remarks, Dr. Robert P. Fischelis, secretary and general manager of the A. PH. A., addressed the group on "Pharmacy in the Affairs of the Nation." Dr. Fischelis stressed the importance of the individual pharmacist in the affairs of his community. He emphasized the strategic position which pharmacists occupy as health educators and referred to them as "purchasing agents" for their communities in matters of health care, whether it be drugs, sick room supplies, or hospital insurance.

He pointed out the need for continuous education on the part of pharmacists in all matters of health care and then summarized the ways in which such continuous education is supplied through the organizations to which pharmacists belong.

Dr. Fischelis referred in complimentary terms to the fine service being rendered by the National Association of Retail Druggists in looking after the business problems of the practicing pharmacist. He then outlined the manner in which the services of the AMERICAN PHARMACEUTICAL ASSOCIATION have been set up at the headquarters building in Washington where thirty or more individuals are at work on the scientific, editorial, and educational program of the ASSOCIATION.

The far-reaching effect of the preparation of drug standards and their publication in the National Formulary; the dissemination of important scientific, technical, and professional information through the JOURNALS of the ASSOCIATION; the appearance of representatives of the ASSOCIATION before committees of Congress, which are considering public health questions, and the participation of the ASSOCIATION in international health affairs were all discussed in some detail. Many of those present expressed surprise and satisfaction at the extent of the participation and influence of the A. PH. A. in national affairs.

Dr. Melvin W. Green, director of the Laboratory of the AMERICAN PHARMACEUTICAL ASSOCIATION, spoke on "Progress in the Science of Pharmacy," explaining some newer concepts of pharmacologic actions of drugs. The increasing trend in the use of very potent and efficacious medication was emphasized by Dr. Green. He pointed out that the basis for the use of such medication was on a firm scientific foundation and that the trend could be expected to continue. Dr. Green also discussed some highlights of the admissions to the new Pharmacopœia and the National Formulary.

Following these talks an open forum was held in which pharmacists at the meeting evinced a lively interest, asked many questions and received additional information on the present status of many problems. A highlight of this forum was an extemporaneous talk by Thomas J. Keleher on his experiences as a pharmacist in the U. S. Navy.

At the luncheon meeting, which was held at the headquarters hotel, Dr. Hugh C. Muldoon, dean of the College of Pharmacy of Duquesne University and chairman of the House of Delegates of the A. PH. A., inspired his audience with a splendidly delivered message entitled "Pharmacists Guard the Public Health."

"Never before have the medicinal needs of the average man been served so well, so conveniently and so inexpensively," said Dr. Muldoon. "Pharmacists often become closer to the people of their neighborhood than any other man except possibly the clergyman, and for this reason the pharmacist is a potent force in the health service of a community."

Despite the high level of service which American pharmacy provides to the public, Dr. Muldoon recognized that "pharmacy's reputation suffers because of the renegade pharmacists with Woolworth minds who exploit and discredit pharmacy

by their gross commercialism. They don't represent pharmacy any more than the quack doctor and the ambulance chaser represent medicine and law," he continued. "Real pharmacists resent their blatant advertising, their aggressive merchandising, their complete subordination of service to gain."

### Our Obligation

Elaborating on this point, Dr. Muldoon observed that "the simple merchandising of the ordinary pharmacist is not incompatible with good pharmacy. Some of the best pharmacy is practiced in drugstores of the semi-professional type, especially in the smaller communities. A man can be both a good pharmacist and a good businessman," pharmacists were told, "but no real pharmacist subordinates his professional work to the business of pharmacy... When a man chooses pharmacy as a life work he assumes an obligation to improve the profession—to amplify, purify, and perfect it, and to leave it better than he found it. This can best be done," said Dr. Muldoon, "through the national associations which are responsible for every major advance in the profession... It will never be perfect but pharmacists can make pharmacy whatever they want it to be. They must drive out the pharmacy squatter, the disreputable, the law defier, the man who is satisfied to be only a merchant."

In the afternoon session Prof. Louis C. Zopf, of the faculty of the College of Pharmacy of the University of Iowa and chairman of the Scientific Section of the A. PH. A., spoke on "Progress in the Art of Pharmacy," and held the rapt attention of the assembly as he unfolded the newer techniques and opportunities for supplying better and more efficient dosage forms of modern therapy. Just as the science behind pharmacy is making rapid strides, so the art of pharmacy is keeping pace, Prof. Zopf pointed out. The many new substances such as emulsifying agents, suspending agents, wetting agents and synthetic waxes, and new equipment such as hand homogenizers, laboratory stirrers, and *p*H indicators have made it possible for pharmacists to render a service never before possible. He emphasized that pharmacists will find many uses for these new materials in developing adequate medication for such medical specialties as ophthalmology, rhinology, and dermatology.

Interest in the round table discussion which closed the day's session was so high that the meeting continued for more than a half hour beyond the scheduled closing hour.

The questions asked covered many of the points brought out in the addresses as well as discussion of barbiturate regulation, Army and Navy pharmacy, and the proposed lengthening of the pharmacy course, and were answered by the "faculty" consisting of Messrs. Fischelis, Green, Muldoon, and Zopf, with President Serles acting as moderator.

Not only were the pharmacists present interested in the technical aspects of their profession but they were also keenly interested in following its progress in relation to broader economic, social, and legislative developments. Many members of the audience expressed the hope that district meetings would become a part of the established policy of the A. PH. A.

At the close of the sessions, the following resolution was passed:

> *Resolved*, that those in attendance at the first regional meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, held at Omaha, Nebraska, April 23, 1947, wish to express deep appreciation and gratitude to the officers of the ASSOCIATION for providing the excellent program which has been presented and to extend a vote of thanks to the Council of the ASSOCIATION for making this meeting possible.

The boards of pharmacy and the colleges of pharmacy of District No. 5, comprising Minnesota, the Dakotas, Iowa and Nebraska, held a district meeting during the preceding two days and most of the delegates in attendance remained for the A. PH. A. District Meeting.

## VACCINE FOR BANG'S DISEASE IS PREVENTIVE, NOT CURE

The brucellosis vaccine developed by the U. S. Department of Agriculture is a preventive and not a cure for Bang's disease, Dr. C. K. Mingle, of the Department's Bureau of Animal Industry, emphasizes.

Reports of irrational use of the vaccine as a treatment led Department of Agriculture scientists to conduct further studies which confirmed "that the vaccine had no appreciable effect on the normal course of diseases in animals that were already infected." The vaccine is considered to be an effective preventive for brucellosis.

# THE KAOPECTATE-PAREGORIC INCOMPATIBILITY†

by RAYMOND E. SCHMITZ and JAMES S. HILL

STINES DRUGSTORE NO. 3, NIAGARA FALLS, N. Y.

## CITRIC ACID OR SODIUM CITRATE SUGGESTED TO PROTECT COLLOID SYSTEM IN COMPOUNDING PROBLEM

COLLOIDAL proprietary preparations sometimes present special problems for the pharmacist. Colloids may be incompatible either with other colloids or with certain electrolytes. The unfavorable interaction of colloids may be classed as a new and distinct division of the field of incompatabilities. Sprowls[1] reviews three colloid incompatibilities, but nothing else on this subject seems to be mentioned in recent literature. Nor has any attempt appeared to remedy specific incompatabilities of this type.

This paper concerns the specific incompatibility of a colloid, Kaopectate, and an electrolyte, paregoric. Kaopectate consists of pectin and kaolin in colloidal suspension and may be classed as an emulsoid. It has a *p*H of 4.5. Paregoric is a solution of electrolytes in a 45% alcoholic vehicle. It has an apparent *p*H of 4.1.*

*Just prior to publication of this paper it was reported to the Journal that a slight modification in the Kaopectate formula has eliminated the incompatibility. The Upjohn Company indicates that this result is coincidental with the work here reported, since no deliberate attempt has been made to prepare Kaopectate for the admixture of paregoric.—The Editor*

Pectin forms negative sols[2] of the emulsoid[3] type with water. Kaopectate was also found to have a negative charge when tested in an electrolytic cell.

As a negatively charged emulsoid Kaopectate is subject to the peculiar dehydrating effect of alcohol on negative colloids and the neutralizing charge effect of electrolytes.[4] Paregoric will produce both of these effects when compounded with Kaopectate.

Because colloidal systems may be protected by the adsorption of a protecting ion[4] of like charge, we studied this problem in its relation to *p*H.

An electrolyte, regardless of *p*H values, may either break or protect a colloidal system. For this reason we chose the citrate anion;[5] and as a cation either $H^+$ or $Na^{+1}$ was to be our choice. Thus it was reasoned that either citric acid or sodium citrate, at optimum *p*H values to be determined, might be the remedy.

Kaopectate, when mixed with one-half its volume of paregoric, jelled at once. When mixed with an equal volume of paregoric, a curdy jell-like precipitate occurred at once. The mixture could not be poured from the bottle. However, if three volumes of Kaopectate were mixed with one volume of paregoric, no untoward effects were noticed after one month.

Thus it would appear that alcohol was the deciding factor. However, 24 cc. of opium tincture mixed with enough Kaopectate to make 90 cc. broke the system into two phases at once. It will be seen in Table 1 that 11% alcohol represented by paregoric had no harmful effect, while 5% alcohol in the form of opium tincture broke the system.

A study of Table 1 suggests that alcohol is not the only disturbing factor. So a study of apparent *p*H values was made in the hope that an optimum value for the protection of the adsorbed ion effect might be established. The results are shown in Table 2.

A study of Table 2 shows there are two points at which the Kaopectate-paregoric mixture is stable. With citric acid the optimum *p*H for

† Presented to the American College of Apothecaries, 1946 meeting, Pittsburgh.

* All *p*H values mentioned in this paper, unless otherwise specified, were determined by the authors with a glass electrode.

TABLE 1

| Sample | Kaopectate | Paregoric | Opium Tr. | Alcohol | Result |
|---|---|---|---|---|---|
| 1 | 30 cc. | 10 cc. | ... | 11.25% | Homogenous and pourable. Good. |
| 2 | 40 cc. | 20 cc. | ... | 15.0% | Jells at once. |
| 3 | 20 cc. | 20 cc. | ... | 22.5% | Breaks into two phases at once. Not pourable. |
| 4 | 66 cc. | ... | 24 cc. | 4.8% | Breaks into two phases at once. Not pourable. |

TABLE 2

| SAMPLE | KAOPECTATE | PAREGORIC | PERCENT ALCOHOL | SODIUM CITRATE | CITRIC ACID | *p*H | RESULT |
|---|---|---|---|---|---|---|---|
| 1 | 40 cc. | 20 cc. | 15 | ... | 0.3 Gm. | 2.9 | Good. |
| 2 | 30 cc. | 30 cc. | 22.5 | ... | ... | 4.0 | Breaks at once. |
| 3 | 30 cc. | 30 cc. | 22.5 | 0.2 Gm. | ... | 5.1 | Breaks at once. |
| 4 | 20 cc. | 20 cc. | 22.5 | 0.2 Gm. | ... | 5.42 | Jells in 12 hrs. Pourable on shaking. |
| 5 | 40 cc. | 20 cc. | 15 | 0.3 Gm. | ... | 5.6 | Excellent. |
| 6 | 20 cc. | 20 cc. | 22.5 | 0.3 Gm. | ... | 5.8 | Excellent. |
| 7 | 40 cc. | 20 cc. | 15 | 0.6 Gm. | ... | 6.15 | Excellent. |

stability is 2.9 and with sodium citrate a *p*H of 5.6 is required. The system is not stable between *p*H values of 4 and 5.4 when sodium citrate is the protector. Pectin as a carbohydrate is not expected to have an isoelectric point,[2] but the extreme values for stability suggest that possibility, at least when paregoric is the precipitant.

The amount of sodium citrate necessary to protect the system seems to be based on the quantity of paregoric present: Sodium citrate, 0.3 Gm., for each 20 cc. of paregoric, regardless of the amount of Kaopectate present.

The sodium citrate, in each case, was first dissolved in the Kaopectate, and the paregoric slowly added with stirring.

## Summary

The stability of the Kaopectate-paregoric system is controlled by the laws affecting colloid.

The dehydrating effect of alcohol plus the precipitating effect of oppositely charged ions is suggested as the cause of this incompatibility.

With citric Acid, an optimum *p*H of 2.9, and with sodium citrate an optimum *p*H of 5.6 is suggested as the remedy for this incompatibility.

Sodium citrate, 0.3 Gm., for 20 cc. of paregoric will approximate the optimum *p*H of 5.6.

The citric acid or sodium citrate is dissolved in the Kaopectate, and the paregoric slowly added with stirring.

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1. Sprowls, J. B.: Incompatibilities of Suspensoids. THIS JOURNAL, 2, 450 (1941).
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3. Hawk, P. B., and Bergeim, O., "Practical Physiological Chemistry," 11th Ed., Blakiston Co., Philadelphia, 1937, p. 6.
4. Bancroft, W. D., "Applied Colloid Chemistry," McGraw-Hill Book Co., New York, 1926.
5. Lyman, R. A., chief ed., "American Pharmacy," 1st Ed., J. B. Lippincott Co., Philadelphia, 1945, p. 145.

# METOPON AVAILABLE FOR LIMITED USE

METOPON hydrochloride, a new morphine derivative, has been released for limited clinical use exclusively for relief of pain in advanced cancer cases.

The new drug, methyldihydromorphinone hydrochloride, has the advantages of high analgesic effectiveness when administered orally, absence of nausea even in patients who vomit upon the administration of morphine or other derivatives, absence of mental dullness, and slow development of tolerance and dependence.

Special regulations covering the distribution of metopon have been set forth by the National Research Council, the organization responsible for development of the drug, to limit its use to relief of pain in terminal malignancies.

The morphine derivative is being produced in limited bulk quantities by Merck, Mallinckrodt, and New York Quinine and Chemical Co., under patent licenses from the Federal government, with Sharp and Dohme and Parke, Davis & Co. licensed to distribute in dosage form as capsules.

The essential features of the present distribution plan are as follows:

1. For patients to be treated for the first time with metopon *initial orders* must be accompanied by:
   a. A statement giving the number of patients and the diagnosis of each case.
   b. A narcotic order form for the quantity of capsules metopon hydrochloride desired, made out to Parke, Davis & Co., Detroit, or Sharp & Dohme, Philadelphia, and sent to the nearest branch office of either company. *Narcotic order forms for metopon must not include any other narcotics.*
   c. The physician should indicate the pharmacist through whom he prefers to be billed.
2. The statement and order will be forwarded by Sharp & Dohme or Parke, Davis to the National Research Council for approval.
3. Immediately upon approval by the National Research Council, Sharp & Dohme, or Parke, Davis will ship the approved quantity

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## CAPON UNITS vs. MILLIGRAMS

*Please inform me as to the relationship between Capon Units and milligrams in the case of testosterone. How many milligrams of testosterone is required to equal 250 Capon Units?—V. P., Texas*

Selye's *Encyclopedia of Endocrinology* and Gilman's *Organic Chemistry* both indicate that 15 micrograms of testosterone is approximately equivalent to 1 International Capon Unit. Accordingly, about 3.75 milligrams would equal 250 Capon Units.

In the case of testosterone propionate, which is frequently dispensed, about 5 milligrams would equal 250 Capon Units (20 micrograms per Capon Unit).

A Capon Unit is defined as the dose of androgenic material which on subcutaneous injection daily for six days into at least 5 capons produces an average increase of 20% in the area of the combs. Since the International Capon Unit was originally determined on the basis of androsterone, its use in expressing the potency of the other androgens should be considered an approximation.

## "PARALDEHYDE COCKTAIL"

*Will you please send me the formula of "paraldehyde cocktail?" I have a physician that writes for it occasionally. Thanking you very much.—E. N., Massachusetts*

To our knowledge there is no standard formula designated by the name "paraldehyde cocktail." Hospitals frequently administer paraldehyde in various liquids, such as fruit juices, under this title. We would suggest that you query the physician as to just what vehicle he has in mind.

A satisfactory vehicle for paraldehyde appears in *Pharmaceutical Recipe Book III*, a publication of the AMERICAN PHARMACEUTICAL ASSOCIATION:

ELIXIR OF PARALDEHYDE

| | |
|---|---|
| Saccharin | 1 Gm. |
| Oil of bitter orange | 8 cc. |
| Oil of cinnamon | 4 cc. |
| Paraldehyde | 240 cc. |
| Alcohol | 500 cc. |
| Glycerin, a sufficient quantity | |
| To make | 1000 cc. |

Dissolve the saccharin in the alcohol, add the paraldehyde and the oils, and then sufficient glycerin to make the product measure 1000 cc. Filter. (Average dose, 4 to 12 cc.)

## D'ANTONI'S STAIN

*We have received a request from a physician to prepare "D'Antoni's Stain," which we could not find in reference books. Perhaps you can help us? —H. K., New York*

Information on D'Antoni's Stain has been published by Dr. Joseph S. D'Antoni, Parasitology Laboratory, Department of Tropical Medicine, Tulane University, New Orleans, La. In brief, this stain is prepared by adding 1.5 Gm. of powdered iodine crystals to each 100 cc. of a 1% standardized potassium iodide solution. This

provides an amount of iodine considerably in excess of saturation and compensates for volatilization. The solution is allowed to stand for four days and is then filtered. There are a number of points in the procedure that must be carefully observed; therefore please refer to the original publication, "Standardization of the Iodine Stain for Wet Preparations of Intestinal Protozoa," in the *American Journal of Tropical Medicine*, 17: 79–84 (1937).

Photoprints of the paper may be obtained for 50¢ from the Army Medical Library, Photo Duplication Service, 7th & Independence Avenue, S. W., Washington 25, D. C. This is a flat charge for ten pages or fraction thereof, to be submitted with the order in cash or as a money order drawn to the Treasurer of the United States.

## DENTAL PLATE ADHESIVES

*If convenient will you kindly give me formulae (or references) for a few good dental plate adhesives?—A. W., Texas*

We refer you to a general discussion of the subject on page 165 of *Accepted Dental Remedies* (ed. 12) and to the listing on page 223 of substances accepted for this purpose by the American Dental Association. One formula is as follows:

| | |
|---|---|
| Powdered tragacanth..... | 22.5 Gm. |
| Powdered Karaya gum..... | 7.5 Gm. |
| Oil of sassafras..... | 0.5 cc. |

A similar formula appears on page 206 of *Pharmaceutical Recipe Book III* published by the AMERICAN PHARMACEUTICAL ASSOCIATION.

## A STERILIZATION PROBLEM

*We are attempting to use an ointment base of the following composition as a vehicle for penicillin:*

| | |
|---|---|
| *Cetyl alcohol*..... | *21.0 Gm.* |
| *Cetaceum*..... | *12.1 Gm.* |
| *White petrolatum*..... | *21.0 Gm.* |
| *Sodium lauryl sulfate*..... | *0.3 Gm.* |
| *Sodium citrate*..... | *3.0 Gm.* |
| *Urea*..... | *4.9 Gm.* |
| *Sterile distilled water*..... | *37.7 Gm.* |

*Before incorporating the penicillin we wish to sterilize this base so that we will be sure that no inactivation of the penicillin due to contamination will take place. We have tried to sterilize by using an autoclave but find that this method causes the ointment to lose moisture, develop an odor almost of rancidity, and become very hard and wax-like.*

*We have not at the moment a dry-heat sterilizer to use. Could you suggest any other method? We appreciate any help that you might be able to offer us.—C. H., Maryland*

The presence of urea and sodium citrate renders this base particularly unstable and obviously unsatisfactory to sterilize by autoclaving. The presence of the water would preclude dry-heat sterilization. This leaves fractional sterilization with moist heat, or preparation of the base under aseptic conditions (using sterile distilled water).

At one time the prevailing opinion was that all penicillin creams had to be sterile. At present, however, this is conceded to be not true. In fact the Food and Drug Administration does not require penicillin ointments to be sterile but only to contain less than 50 organisms per gram. When ointments are prepared using careful technique they should not be more contaminated than this. It is naturally assumed that such ointments will be stored in the refrigerator by the patient and that they will be used for a short period of time only.

Berry (*Pharm. J.*, 1: 160, 1946) has pointed out the lack of necessity for actually sterilizing penicillin creams when the only objective is to prevent penicillinase-producing organisms from multiplying and destroying the penicillin.

## WHAT IS 0.5% "ACETIC ACID?"

*We should like to have you comment on a disputed point. I maintain that 0.5% acetic acid is logically interpreted to mean 0.5% acetic acid, U. S. P. If 0.5% $CH_3COOH$ is wanted it should be thus specified.—R. E., New York*

The confusion concerning the meaning of "0.5 solution of acetic acid" is understandable, but there seems to be no question but that a 0.5% solution of $CH_3COOH$ is intended. You will note on page 4 of *U. S. P. XII* that "per cent 'volume in volume' (*v/v*) expresses the number of cubic centimeters of an active constituent in 100 cubic centimeters of solution." It is universal practice in chemistry, and we believe also in pharmacy, to assume that an expression of percentage indicates the amount of pure active constituent. As a practical matter we do not always calculate percentage solutions on this basis, since so many substances are for practical purposes 100% pure.

For example, refer to the monograph for solution of potassium hydroxide, *National Formu-*

*lary VIII*, page 410. Six grams of potassium hydroxide is specified per 100 cc., although the rubric is 5% total alkali. This formula is based on potassium hydroxide U. S. P. 85% and carries a notation that if potassium hydroxide of higher strength is used it should be in proportionate quantity. This illustrates pharmaceutical thinking on the question raised, although it is not entirely analogous.

Likewise the rubric for a tablet will specify a percentage of active ingredient which includes all tolerances, in other words percentage of the 100% pure substance.

It may be more logical and certainly leaves less room for doubt if percentage in the instance you cite would be expressed as "0.5% solution $CH_3COOH$," but this may be too much to expect in view of accepted usage.

## DEODORIZED KEROSENE EMULSION

*Where can I get deodorized kerosene? Also please give the procedure for making kerosene emulsion.—E. Z., Ohio*

Deodorized kerosene, if not available through your wholesaler, may be obtained from such firms as L. Sonneborn Sons, Inc., 88 Lexington Avenue, New York 16, or The Joseph Turner & Company, Ridgefield, N. J.

You do not indicate the purpose of the kerosene emulsion, but perhaps the following formula for an oil-in-water emulsion will fill your need:

| | |
|---|---|
| Kerosene | 50.00% |
| Duponol D paste | 2.00% |
| Cetyl alcohol flakes | 1.25% |
| Borax | 0.5 % |
| Water | 46.25% |

Dissolve the cetyl alcohol flakes in the kerosene, warming gently if necessary. Add slowly, with efficient hand agitation, the Duponol D paste and borax dissolved in about one-fourth of the water. Then add the balance of the water and stir. A more fluid emulsion is prepared by using only Duponol D, omitting cetyl alcohol flakes and borax.

Duponol and cetyl alcohol may be available through your wholesaler. If not, Duponol D is a product of E. I. duPont de Nemours and Company, Wilmington 98, Del.; cetyl alcohol may be available from the R. F. Revson Co., 114 W. 18th St., New York 11, N. Y. When cetyl alcohol is in short supply, Revson has made available a cetyl alcohol substitute which is said to have satisfactory properties.

Duponol C is more commonly used pharmaceutically as an emulsifier, whereas Duponol D is primarily used in industrial formulations. We would therefore suggest that Duponol C be substituted (in somewhat lower concentration), since D might contain irritating impurities. The manufacturer's advice should be sought on this point.

## DIARRHEA COMPOUND FORMULAS

*Can you give us formula procedures for several diarrhea compounds, with and without pectin?—I. S., Pennsylvania*

The following formula, which includes pectin, is taken from the *University (Mich.) Hospital Formulary;* the formula without pectin is from *Pharmaceutical Recipe Book III.*

I—KAOLIN-PECTIN MAGMA

| | |
|---|---|
| Kaolin | 20.0 Gm. |
| Pectin | 0.6 Gm. |
| Compound almond elixir (N.F. VI), a sufficient quantity | |
| To make | 100.0 cc. |

II—BISMUTH-KAOLIN POWDER

| | |
|---|---|
| Bismuth subcarbonate | 250 Gm. |
| Vanillin | 1 Gm. |
| Kaolin | 749 Gm. |
| To make | 1000 Gm. |

Mix intimately the bismuth subcarbonate and the kaolin in a mortar and add the vanillin dissolved in 5 cc. of alcohol; continue the trituration until the alcohol is evaporated and the vanillin is uniformly dispersed in the mixed powders.

## WHAT IS BENZIDINE BASE?

*Kindly send me available information about benzidine base.—B. P., Pennsylvania*

Benzidine is a colorless crystalline compound, para-diaminodiphenyl ($NH_2 \cdot C_6H_4 \cdot C_6H_4 \cdot NH_2$), formed by the action of acids on hydrazobenzene. It is used as a test for blood according to the following procedure:

To a saturated solution of benzidine in glacial acetic acid add an equal volume of 3% hydrogen peroxide and 1 cc. of the unknown. A blue color indicates blood.

For additional information refer to *Approved Laboratory Technic*, (p. 245, ed. 4) by Kolmer and Boerner. Benzidine, C. P., is available from Merck and Co., Inc., Rahway, N. J.

# The Hospital Pharmacist

HOSPITAL PRACTICE—

## WHAT SHOULD IT MEAN TO COLLEGES AND BOARDS?*

by L. F. TICE†

NO ONE familiar with current events and trends in pharmacy can deny the growing importance of hospital pharmacy and the increased attention given it from many directions. The recent announcement by the AMERICAN PHARMACEUTICAL ASSOCIATION of the establishment of a Division of Hospital Pharmacy is a clear indication of its growing importance. Any development of this magnitude in the field of pharmacy is certain to carry with it difficult problems as well as a challenge to both our colleges of pharmacy and our state boards.

Some of these problems are known already to most of us. But it might be worth while to consider briefly the reasons for this growth of hospital pharmacy, what seems to be its future, and what we as colleges and boards must do to discharge our responsibilities both public and professional.

It was inevitable that hospital pharmacy would eventually assume major importance in the scheme of things. What many of us may not realize, or refuse to believe, is that it may some day dwarf retail pharmacy in certain respects in its pharmaceutical service to the public. To attempt to reverse this trend would be neither wise nor successful. One must recognize the inevitability of change just as one must face the certainty of advancing age, even though it may be to some of us an unpleasant prospect.

For many years hospital pharmacy was almost the unwanted child of pharmacy. Hospital administrators paid little or no attention to pharmaceutical service or the lack of it; they were content to allow nurses, orderlies or other unskilled persons to perform such work. The total cost in terms of economic waste, human misery, and even death would be hard to assess, since only a few incidents were of such glaring proportions that they came to public notice. Even then the inherent faith by most people in the medical and nursing professions prevented any general demand for reform. When positions in hospital pharmacy were offered, the salary level was invariably below that paid to nurses; the person filling such a position was often treated with little respect and rarely given any real opportunity to practice professional pharmacy.

The credit for the reversal of this trend should go to some indomitable pioneers. By hard work and courage they convinced hospital administrators that a well-organized and adequately staffed pharmacy in the hospital improved greatly the quality of service to patients and the staff, and lowered costs at the same time. Gradually hospital pharmacy received its proper recognition and respect; and finally a well-organized pharmacy department became recognized as a requirement by the American Hospital Association.

With the progress made in this direction and good leadership, hospital pharmacists—now encouraged—began to develop plans for improving their field of specialization. They adopted new techniques and formed an association for the improvement of hospital pharmacy. The American Society of Hospital Pharmacists, its *Bulletin*, the Hospital Pharmacy Section of the A. PH. A. and, now, the Division of Hospital Pharmacy is ample evidence of their progress in the last decade.

### Trend Toward Hospital Care

An entirely separate trend, but one bearing on hospital pharmacy, is the increasing importance of the hospital in the over-all picture of public health. With the complexity of modern diagnosis

* Adapted from a paper presented by the chairman of the Committee on Pharmacy, Joint Meeting of Boards and Colleges, District No. 2, 1947.

† Assistant dean and director of the Pharmacy Department, Philadelphia College of Pharmacy and Science, Philadelphia, Pa.

and treatment the physician is less able to treat a patient scientifically at home where adequate facilities are lacking. The public recognizes this, and the demand for hospital care far exceeds our present facilities. Prepaid hospitalization insurance plans have grown to phenomenal proportions. Former servicemen, accustomed to excellent care during the war years, will object to anything inferior for themselves or their families.

The government has recognized this public insistence on adequate care; hospital construction in the next decade is planned on a large scale. Pharmacists, properly trained and qualified, must staff these hospitals and other hospitals now awake to their need for well-trained personnel. The boards and the colleges must meet this challenge, not with a spirit of reactionary objection, but with vision, imagination, and action. What needs to be done? Let us briefly state the most important of our problems.

## New Concepts for Colleges

One of the first obstacles that must be overcome is the feeling on the part of some pharmaceutical educators and others that any graduate of a four-year pharmacy course is qualified to serve as a hospital pharmacist. It should not be necessary to point out that hospital pharmacy is a highly specialized field. We would not think of putting a graduate having only a bachelor's degree and no experience in full charge of a class in pharmacy; and yet teaching is no more a specialized field than hospital pharmacy. True enough that some of our outstanding hospital pharmacists had only a bachelor's degree and some even less training before they entered this field. But in these cases they developed along with their field of specialization which to the novice today is obviously impossible in the same degree.

The answer does not lie in the inclusion of a few courses in hospital pharmacy in the present curriculum leading to a Bachelor of Science degree. This can do little other than teach the student a few of the special pharmaceutical manipulations that may be required. Neither is experience alone in a hospital pharmacy adequate training for a superior type of hospital pharmacist. The American Society of Hospital Pharmacists has given considerable thought to this problem, and its Committee on Minimum Standards has made certain recommendations having to do with internships in hospital pharmacy.

Some of the Committee's recommendations are particularly noteworthy. It is felt that internship in hospital pharmacy should follow the ordinary collegiate training, that it should be in teaching hospitals, i.e., those affiliated with a medical school, and that the interns should take certain courses with the medical students. This last point is particularly important, for the association with medical students in the classroom and laboratory will do more to promote mutual understanding and respect between pharmacy and medicine than any other plan ever conceived.

The Philadelphia College of Pharmacy and Science and the Jefferson Medical College Hospital are soon to announce a training program for hospital pharmacists based on a somewhat expanded version of the recommendation of the A. S. H. P. Minimum Standards Committee. Briefly, it will consist of a two-year, full-time, postgraduate course. The student will spend about half time in the classroom and half working as an intern in the pharmacy at the hospital. Courses, including manufacturing pharmacy, will be taken at the Philadelphia College of Pharmacy and Science, and pharmacology and biochemistry will be taken at the Jefferson Medical College. Residence in the hospital will be required. Upon the completion of this program the graduate will be awarded the M.Sc. degree on the basis of 32 credits of postgraduate instruction and certified as a qualified hospital pharmacist. Some other institutions are considering a similar plan.

It is my opinion that such a plan offers some promise in supplying a few outstanding hospital pharmacists each year for the many positions now open and for those that will come in the near future.

Although this plan may have imperfections it is described in the hope that it will convey what every outstanding hospital pharmacist feels and what we as educators must accept: Hospital pharmacy is a highly specialized field that should be taught on a postgraduate basis and only with a well-organized hospital pharmacy available as a teaching tool. It is also believed highly desirable that one have the cooperation of a medical college if the pharmacy intern is to have the optimum environment for this work.

## Special Problems for Boards

Our state boards are faced with problems that must be met more objectively than has been the case in some instances to date. It is the primary function and the responsibility of a board of pharmacy to pass upon the qualifications of one

who wishes to practice pharmacy and to inspect and approve those places where pharmacy is to be practiced. Only recently have some of the boards realized that, in their failure to include the field of hospital pharmacy, they are not discharging fully their public responsibility.

If the boards of pharmacy do not supervise this area of pharmacy, just who is qualified to do so and who should? Surely not the hospital itself, for if so nothing would prevent any misconduct or deficiencies that it might overlook or condone. Most boards are now convinced that the pharmacy department in a hospital is definitely within their province of regulation; but a more forthright stand and legal clarification of this matter is still needed in some states.

Hospital pharmacy does confront many boards of pharmacy with two major problems that require careful thought and discussion. First, there is the question which has been raised as to the competency of a board of pharmacy to inspect and regulate a hospital pharmacy when no single member is, or ever was, a hospital pharmacist.

Although I am a full professor of pharmacy and have taught pharmacy to some of the now outstanding hospital pharmacists in the United States, I would surely hesitate in professing the ability to evaluate a hospital pharmacy or even to teach a course so named.

Actually, the inclusion of one hospital pharmacist on the board would not only meet what seems to be a justified criticism but it would greatly assist the board in its work. It would make the regulation of hospital pharmacies much easier and effective. Where a change in the law is necessary for such inclusion, steps should be taken immediately and in good faith to accomplish this objective.

A second problem—and point of contention—is the N. A. B. P. recommendation that only a part of the practical experience requirements may be satisfied by work in a hospital pharmacy. The N. A. B. P. asks that at least six months of a year's practical experience be in retail pharmacy.

It is true that a person whose experience has all been obtained in a hospital pharmacy is not versed in some of the activities engaged in by the retail pharmacist. But the fact overlooked by some of the boards is that their responsibilities begin and end in *evaluating* the *professional qualifications* and activities of the candidate. The granting of a license to practice pharmacy does not carry with it a certificate of business acumen or a guarantee of financial success. I believe that the well-regulated and well-staffed hospital pharmacy is just as satisfactory a place to gain professional experience as a retail pharmacy. Some professional pharmacies today are in essence the counterpart of a hospital pharmacy and experience in these pharmacies is acceptable.

Board members should of course impose the same standards on a hospital pharmacy as on a retail pharmacy from the standpoint of personnel, equipment, and professional service before approving experience obtained there. But to rule out all hospital pharmacies as inadequate for the training of pharmacists is, in my opinion, a decision based upon faulty reasoning. If maintained it will impair the training of specialists in hospital pharmacy and cause ill will without sufficient reason.

This report although presenting a personal viewpoint, covers a subject upon which there must be frank and full discussion. We have reviewed briefly the growing importance of hospital pharmacy and the trends that seem certain to give it increased stature in the near future. The questions this raises with regard to education, regulation and practice deserve careful consideration to assure the continued advance of the profession of pharmacy as a whole.

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| Vitamin A | 25,000 units | 5 | times |
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*Kruse, H. D.: Proc. Conf. Convalescent Care, N. Y. Acad. Med. 1940, pp. 15-36.

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EDUCATION (FROM PAGE 260)

cal practice wherever they are established. By exclusive prescription pharmacies and professional pharmacies, I mean those whose operations are confined to the compounding and filling of prescriptions and, in addition, to the dispensing of other drug products, sickroom or physicians' supplies and related products that serve the needs of human and animal health.

The pharmacy colleges now have an opportunity of further expanding their own and the pharmacy profession's influence, and their contribution to the industry as a whole, by offering curricula which will enable pharmacy college graduates to practice and supervise wherever pharmaceutical knowledge is required. By so doing they can maintain increased enrollments without overcrowding and without making unattractive any branch of the pharmaceutical industry.

A prerequisite of two years of academic college work is very necessary preparation for the study of pharmacy in its various professional areas, such as retail pharmacy, hospital pharmacy, hospital management, professional service pharmacy and sales promotion, pharmaceutical sales engineering, pharmaceutical journalism, pharmaceutical business administration, pharmaceutical market research, pharmaceutical chemistry, and pharmaceutical engineering.

Every such curriculum in pharmacy should be so constituted as to qualify the graduate to become a registered pharmacist following the requisite amount of practical retail apprenticeship or internship.

Pharmaceutical engineering[3] as outlined in a suggested curriculum in an earlier article is a union of the curricula of pharmacy and chemical engineering, together with sufficient additional work in chemistry to qualify the pharmaceutical engineer for chemical or pharmaceutical research.† Two years of prerequisite academic training, plus four years of professional college work should be required.

The pharmaceutical engineer who has the academic training of a pharmacist and has served the necessary internship to fulfill the requirement for registered pharmacist (and has thus gained good, first hand knowledge of pharmaceutical operations and thinking) will be better qualified than others for the specialized technical positions such as engineer, research director, chief chemist, plant superintendent, production manager, production foreman, purchasing agent, and other executive positions wherein a good knowledge of the sciences is necessary or at least desirable.

Many universities can offer pharmaceutical engineering* because both pharmacy and chemical engineering courses are already offered. Other pharmacy colleges not so fortunately situated might make necessary arrangements with nearby engineering colleges to teach the required engineering subjects.

A pharmaceutical engineer, so trained, would obviously have a greater range of employment possibilities from which to choose, or to fall back upon in case of necessity, due to his greater versatility, inasmuch as he would have all the qualifications of a pharmacist, chemist, and chemical engineer.

A curriculum in pharmaceutical engineering would undoubtedly influence students to matriculate in colleges of pharmacy who would otherwise not do so and would thus be inclined to stimulate postgraduate work in other branches of pharmacy such as preparation for teaching. It would thereby raise the educational level and prestige of pharmacy as a whole.

The required subjects in the engineering portion of the curriculum cannot be given most effectively as postgraduate work after completion of the pharmacy course as presently constituted because of the courses prerequisite to more advanced subjects which are essential. The prerequisite courses must be pursued at an earlier time in the curriculum. For the same reason requirements of the pharmacy curriculum cannot be pursued most satisfactorily by the graduate chemical engineer.

## Summary

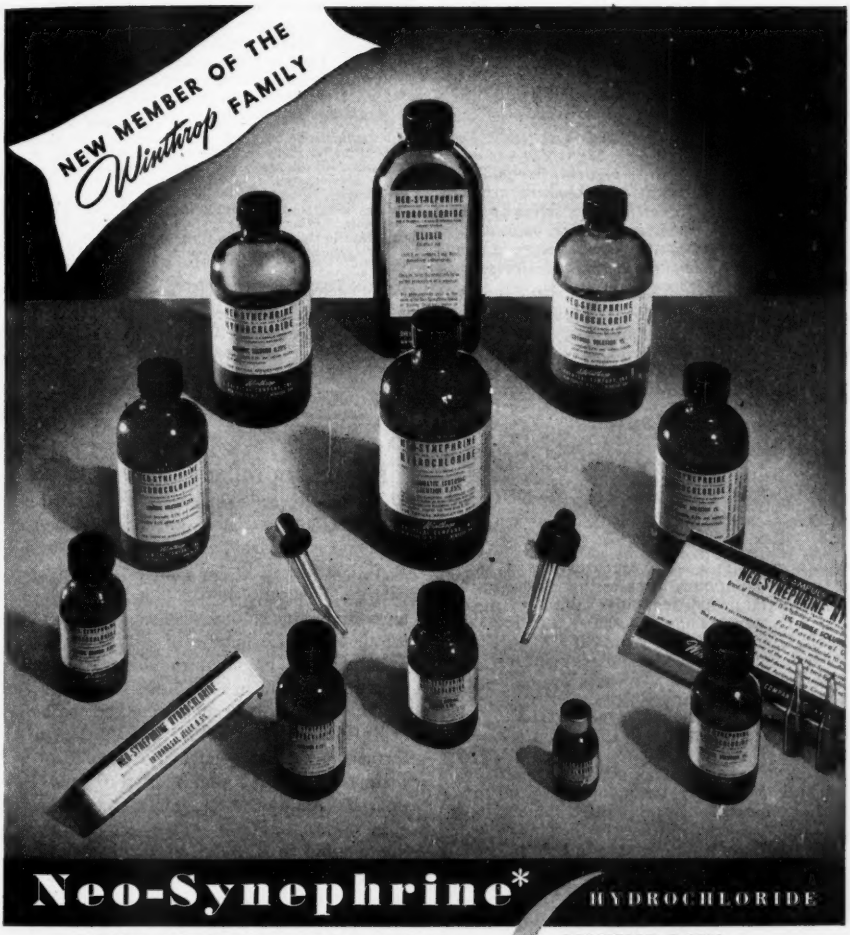
It is suggested that colleges of pharmacy establish a two-year college prerequisite to professional courses offered by them and to give students the advantages of subsequent selection of curricula in various branches of pharmaceutical education. It is especially recommended that pharmaceutical engineering be offered as a standard course for the benefit of the manufacturing branch of the industry as well as for the advantage that such a course of study would be to both the student who is so inclined and to the colleges of pharmacy themselves.

† See also "Pharmaceutical Engineering" by Francis Chilson and "Engineering Problems of the Pharmaceutical Manufacturer" by Carl J. Klemme, *Am. J. Pharm. Educ.*, XI: 18, 25 (January), 1947.

* Purdue University has announced the introduction of a pharmaceutical engineering major beginning September, 1947.

### REFERENCES

1. Product sales figures from *Drug Topics*, Vol. **90**, No. 21 (Oct. 14), 1946.
2. Olsen, Paul C.: An address delivered at Sales and Advertising Conference, American Pharmaceutical Manufacturers Association, "Proc. Sales and Adver. Conf., Am. Pharm. Manuf. Assoc.," February 6, 1946.
3. Peterson, Arthur F.: Pharmaceutical Engineering. *Am. J. Pharm. Educ.*, **9**, 176–185 (April), 1945.

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It enjoys year-round use as an individual therapeutic agent as well as conjointly with other medicaments.

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*SOLUTION 0.25%*
1 fl. oz., 4 fl. oz., 8 fl. oz.

*AROMATIC SOLUTION 0.25%*
1 fl. oz., 8 fl. oz.

*EMULSION 0.25%*
1 fl. oz.

*SOLUTION 1%*
1 fl. oz., 4 fl. oz., 8 fl. oz.

*JELLY 0.5%*
Tube of 15 Gm.

*ELIXIR 0.1%*
8 fl. oz.

*PARENTERAL SOLUTION 1%*
1 cc. Ampul, 10's

*PARENTERAL SOLUTION 1%*
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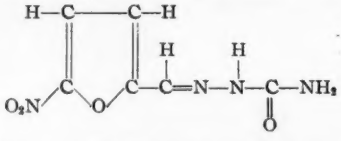
*Council descriptions of drug products are published regularly in* THIS JOURNAL *as they are accepted. Rules upon which the Council bases its action appeared in the July (7: 320) 1946 issue and may be secured in pamphlet form upon request to the Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 N. Dearborn St., Chicago.*

**NITROFURAZONE.**—5 - nitro - 2 - furaldehyde semicarbazone.—$C_8H_6O_4N_4$.—M. W. 198.15. A synthetic antibacterial substance derived from furfural, possessing the following structural formula:



*Actions and Uses.*—Nitrofurazone is a substituted furan compound possessing bacteriostatic and bactericidal properties; it is inhibitory in solutions with concentrations of 1:200,000 to 1:300,000 and bactericidal at 1:50,000 to 1:75,000. It is not soluble in much less than 5000 parts of water. It is effective in vitro and in vivo against a variety of gram negative and gram positive bacteria; it has least bacteriostatic activity against Bacillus pyocyaneus and little bactericidal effect on Diplococcus pneumoniae.

Nitrofurazone is useful for topical application in the prophylaxis and treatment of superficial mixed infections common to contaminated wounds, burns, ulceration, and certain diseases of the skin. It may be useful as an adjunct to surgery in the preparation of areas for skin grafting and in the treatment of osteomyelitis. Daily application for periods of one month or longer may produce a local reaction in a small percentage of cases. Sensitivity or intolerance to its local use has been occasionally observed and may be cause for its discontinuance. Because of this, continuous applications for periods as long as five days may be capable of producing sensitization. Photosensitization from sunlight has not been encountered. Variant bacterial strains showing induced resistance to sulfathiazole, penicillin, or streptomycin are as susceptible to nitrofurazone as their parent strains. Induced resistance to the aforementioned agents does not entail resistance to nitrofurazone

Systemic toxicity due to absorption of the compound is considered unlikely. Clinical studies indicate that the ingestion of 1 to 3 Gm. daily for long periods is fairly well tolerated by the majority of human subjects, but until more conclusive evidence of its mode of action and chemotherapeutic value becomes available its internal use cannot be recommended.

*Dosage.*—Nitrofurazone is used topically in an ointment-like base containing a concentration of 1:500 (0.2 per cent). It is applied locally either directly or to dressings that cover the infected area. The base is water soluble but liquefies at body temperature and may thus require special coverings to maintain effective contact with certain areas to which it may be applied. Dressings may be reinforced with cellophane or similar material, and petrolatum gauze may be used for a barrier to limit the absorption into the dressing. On exposure to light, the bright yellow nitrofurazone turns dark brown. This is not associated with any ill effects and may be avoided by covering with light dressings.

*Tests and Standards.*—

Nitrofurazone occurs as an odorless, lemon-yellow colored crystalline powder, which turns brown-black and decomposes at from 236° to 240°. It is nearly tasteless but develops a bitter after-taste. It is slightly soluble in alcohol (1:590), in propylene glycol (1:350) and in polyethylene glycol mixtures; very slightly soluble in water (1:4200): practically insoluble in ether. The crystals tend to darken on prolonged exposure to light.

For tests and standards see *J. Am. Med. Assoc.*, 133:1281, 1947.

EATON LABORATORIES, INC., NORWICH, N. Y.

**Furacin Soluble Dressing 1:500:** 113 Gm. and 454 Gm. jars. Each hundred grams contains Furacin 0.2 Gm., Carbowax (1530) 30 Gm., Carbowax (4000) 15 Gm. and polyethylene glycol (300) 54.8 Gm.

U. S. patent 2,319,481 (expires 1962); U. S. trademark 403,279.

**HEPARIN SODIUM.**—The hydrated sodium salt of a naturally occurring, complex organic polymer possessing anticoagulant properties. The chemical structure of heparin has not been fully established. It is considered to be a dextrorotatory polysaccharide made up of hexosamine and hexuronic acid units containing sulfuric acid ester groups. Heparin is found in a large number of body tissues. Heparin sodium may be prepared from liver or lung tissue by a modification (Kuizenga and Spaulding: *J. Biol. Chem.*, **148:** 641, 1943) of the method of Charles and Scott (*Biochem. J.*, **30:** 1927; 1936). The product is further purified for medicinal use.

Heparin sodium is standardized to possess not less than 100 units of anticoagulant activity per milligram of dry material, by the sheep plasma coagulation method (Kuizenga, Nelson and Cartland: *Am. J. Physiol.*, **139:** 612, 1943). The standard of potency is the Provisional International Standard, a dried preparation of the sodium salt of heparin to which has been assigned a potency of 130 units per milligram (*League of Nations, Bulletin of the Health Organization*, Vol. X, No. 2, p. 151, 1942–1943). This Provisional International Standard is to be used only as a standard of potency.

*Actions and Uses.*—Heparin sodium has the property of inhibiting blood coagulation. It may aid the normal body to maintain blood in a fluid state as traces are detectable in the blood. Very little is known concerning the metabolism, excretion and fate of heparin sodium in the body. Its anticoagulant action appears to be effected by action on the thrombin, which with fibrinogen forms fibrin.

The exact status of heparin sodium in surgery and medicine has not been determined, but it is claimed to be of value as a substitute for citrate in blood transfusions, in an attempt to prevent postoperative thrombosis and possibly thrombosis of other origin, the prevention of recurring thrombosis in phlebitis and pulmonary embolism, and other uses. It has

been used alone and with sulfonamides in the treatment of subacute bacterial endocarditis, but much work remains to be done before this procedure can be generally accepted; results have not been impressive.

*Dosage.*—The potency of heparin sodium is expressed in units. Ampul solutions keep indefinitely and may be sterilized by boiling or autoclaving at 110° for thirty minutes. The substance is inactive orally and is usually injected intravenously. It may be given by single injection or continuous intravenous drip, the infusion being adjusted by watching the coagulation time. The clotting time should be maintained between fifteen and twenty minutes. If a chill develops or spontaneous bleeding occurs, the drug should be stopped. When the interrupted dose method is employed, 50 mg. (5000 units) may be administered at intervals of four hours up to a total of 250 mg. per day. For continuous drip, 100 to 200 mg. (10,000 to 20,000 units) is added to 1000 cc. of 5% sterile dextrose or isotonic sodium chloride solution. The flow may be started at about twenty drops per minute.

*Tests and Standards.*—

Heparin sodium occurs as a white to lightly colored, amorphous, gumlike powder. It is very soluble in water but practically insoluble in alcohol, acetone, benzene, chloroform, and ether. The *p*H of a 1% solution of heparin sodium lies in the range of 6 to 7 at 25°.

For tests and standards see *J. Am. Med. Assoc.*, **133**: 1009 (1947).

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

**Solution Heparin Sodium:** 10 cc. vials. Each cubic centimeter contains 10 mg. of heparin sodium, preserved with 0.5% phenol.

UPJOHN COMPANY, KALAMAZOO, MICH.

**Solution Heparin Sodium:** 10 cc. vials. Each cubic centimeter contains 10 mg. of heparin sodium, preserved with 0.5% chlorobutanol.

# GEN. BLISS NAMED ARMY SURGEON GENERAL

BRIGADIER General Raymond W. Bliss will become the new Surgeon General of the Army on June 1. His nomination by President Truman has been confirmed by the Senate for a statutory term of four years. As Surgeon General of the Army, Gen. Bliss will assume responsibility for development of pharmaceutical service in the Medical Department, either through the Pharmacy Corps Act or legislation now pending for a Medical Service Corps (see page 265).

General Bliss, who has served as Deputy Surgeon General since January 1, 1946, succeeds Maj. Gen. Norman T. Kirk. Gen. Kirk, whose term as Surgeon General expires May 31, will retire from active duty.

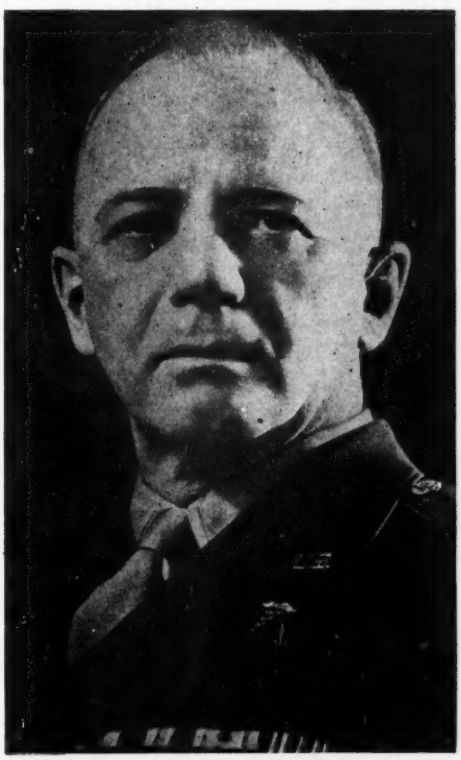
Col. George E. Armstrong, now Chief of the Office of Personnel, Office of the Surgeon General, will become assistant to the Surgeon General, with rank of brigadier general, for a statutory four-year term.

Gen. Bliss, the new Surgeon General, was born at Chelsea, Mass., May 17, 1888. Following graduation from Tufts College with the degree of Doctor of Medicine, he was commissioned a first lieutenant in the Medical Reserve Corps in September, 1911. He served on active duty until May, 1913, when he was commissioned a first lieutenant in the Medical Corps upon graduation from the Army Medical College, Washington, D.C.

After tours of duty at various stations in the United States and Hawaii, he entered the Harvard Medical School for special work in surgery, and in 1921 received a degree in surgery. In October of that year he became Executive Officer of the Hospital Subdivision of the Veterans' Bureau at Washington.

Subsequent to World War I, Gen. Bliss served as Chief of Surgery at Sternberg General Hospital, Manila, P. I., at Fort Sam Houston and at William Beaumont General Hospital, El Paso.

He was a military observer in London from



SURGEON GENERAL RAYMOND W. BLISS

September, 1940, to January, 1941, and became Surgeon of the First Army and Eastern Defense Command in 1942. He was assigned as Chief of Operations in June, 1943, and as Assistant Surgeon General in August, 1944, in the Office of the Surgeon General, Washington, D. C., serving in that capacity until his appointment as Deputy Surgeon General January 1, 1946. He was made Assistant to the Surgeon General in February, 1946, with permanent grade of brigadier general.

Gen. Bliss, who was awarded an honorary Doctor of Science degree by Tufts College in 1943, is a fellow of the American College of Surgeons. During World War II he made extensive tours of the Pacific areas, and later served as an observer at the Atom Bomb Test at Bikini. He has just returned to Washington from a two-month inspection trip through the European and Mediterranean areas.

Gen. Bliss has been awarded the Distinguished Service Medal, Legion of Merit, French Legion of Honor, and the Award of the Italian Crown.

## NEUTRAL VEHICLE COMPATIBLE WITH MOST MEDICAMENTS

A neutral vehicle and digestive, said to be particularly useful for carrying nauseant drugs, is being suggested to physicians by the Joint Committee on Professional Relations of the Medical Society of New Jersey and the New Jersey Pharmaceutical Association. The formula is as follows:

ELIXIR PAPAIN AND DIASTASE

| | |
|---|---|
| Papain | 1.8 Gm. |
| Diastase | 1.8 Gm. |
| Glycerin | 36.0 cc. |
| Alcohol | 21.6 cc. |
| Water, *q. s.* | 120.0 cc. |
| Flavored with compound spirit of orange. | |
| Colored red with solution amaranth. | |

The preparation produces no incompatibilities with carbonate or other alkaline salts and is compatible with most other drugs.

### MINNESOTA ASSOCIATION HEAD RECEIVES AWARD

H. Parker Haywood, president of the Minnesota State Pharmaceutical Association, has received the *Minneapolis Star* and *Tribune* award for leadership in Minnesota and for his contributions to the upbuilding of the state. The award was made at the annual meeting of the Minnesota State Pharmaceutical Association in May.

## Typical Days

### FROM THE SECRETARY'S DIARY FOR MARCH

—1st and 2nd—

MOST of this Saturday spent with John Winter who will take over the advertising management of our publications. Educating an apt pupil is always an education for the educator because it brings out how few things connected with our daily tasks are as obvious to others as they seem to us. The quiet of a Saturday afternoon and any part of Sunday are as a tonic after the humdrum of the weekly toil, and the output of constructive grist for the pharmaceutical mill shows a corresponding rise.

—3rd—

Now actively preparing for the District Meeting at Omaha and laying plans for the coming membership drives, all of which requires many staff conferences to assure smooth sailing and proper timing. In the evening, with Glenn Sonnedecker to the displays and addresses to the coming generation of scientists fostered by Science Service under the dynamic leadership of Watson Davis.

—4th—

All day cleaning up the unfinished business and at 8:30 p. m. via B. & O. to Cleveland for a series of meetings.

—5th—

Bright early from the depot to the Statler Hotel representatives of the press were on hand to get their stories. After the interviews, to the Western Reserve University College of Pharmacy to address the student body on the opportunities for career men and women in pharmacy. Glad to meet the officers of the A. PH. A. Student Branch and faculty members who graced the occasion.

Now with John Levy and C. S. Stonebreaker to the 25th anniversary luncheon of radio station WHK at the Hollenden where the program was beautifully carried out. Later to meet officials of various Cleveland health agencies at the Cleveland Health Museum to discuss informally the importance of the pharmacist to all public health agencies. In the evening to dinner at the Masonic Hall with many fine pharmacists and their ladies, and later to address an outpouring of Cleveland's pharmacists who constitute the members of our Local Branch and other organized groups.

Before and after this meeting some special sessions with the Ohio hospital pharmacists mothered by Evlyn Gray Scott; and the arguments about practical experience and hospital pharmacy organization waxed warm but ended on a highly friendly note. Thank the Lord for men and women with

(*Continued page 288*)

# Constant Commanding Promotion

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### CRYSTALLINE PENICILLIN G POTASSIUM SALT

Crystalline Penicillin G Potassium is applicable whenever penicillin is indicated. Contains not less than 1435 units per mg., and is penicillin G. May be administered intramuscularly or subcutaneously. In serum type vials containing 100,000, 200,000 and 500,000 units. Requires no refrigeration.

### CRYSTALLINE PENICILLIN G SODIUM SALT

Highly purified, Crystalline Penicillin G Sodium provides not less than 1500 units per mg.; requires no refrigeration. May be given subcutaneously with relative freedom from local pain or reaction. In serum type vials containing 100,000, 200,000, 500,000, and 1,000,000 units.

### CRYSTALLINE PENICILLIN G POTASSIUM IN OIL AND WAX

Provides 300,000 units of Crystalline Penicillin G Potassium per cc. May be given subcutaneously or intramuscularly. Heat stable, requires no refrigeration even in the tropics. In 10 cc. size and 20 cc. size serum type vials, containing 300,000 units per cc.

### TABLETS BUFFERED PENICILLIN-C.S.C.

Provide per tablet 50,000 units of Crystalline Penicillin G Potassium (potency not less than 1435 units per mg.). Heat stable, requires no refrigeration. Unusually well tolerated. In bottles of 8 and 48 tablets.

An Important YET LARGELY UNHEEDED Factor in Penicillin Therapy
THE SPECIES OF PENICILLIN ADMINISTERED
TABLETS BUFFERED PENICILLIN-C.S.C.
PENICILLIN-C.S.C. Crystalline Type
PENICHLOR

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**4 POWERFUL MAILINGS TO ALL DOCTORS IN RAPID SUCCESSION**

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**ANY WHOLESALER CAN SUPPLY YOU**—All wholesalers and jobbers throughout the country are adequately stocked with these fast-moving C.S.C. Penicillin preparations. Check your own stocks to make certain that you can meet your physicians' needs. Remember, C.S.C. PENICILLIN PREPARATIONS REQUIRE NO REFRIGERATION

# PENICILLIN-C.S.C.

convictions who are not afraid to utter them and sensible enough to know that progress is made only when minds are permitted to meet and the main objectives are not sacrificed to pettiness. Finally a midnight chat with Dean Wyss who is sparking the Cleveland pharmaceutical fraternity just as he did in Buffalo.

—6th—

At 7:45 a. m. on the way to Toledo to meet Dean Jenkins of Purdue for an inspection of the University of Toledo's College of Pharmacy. Pleasantly surprised to find Anton Hogstad a recent faculty acquisition, and spent the morning interviewing Dean Larwood, Acting President Carter, Prof. Aponte and other faculty members. After luncheon a thorough inspection of the laboratories, classrooms and equipment, and then a session for comparison of notes at the Commodore Perry before Dean Jenkins set sail for Purdue and we embarked for the return trip to Washington.

—7th—

Direct from Union Station to the office where staff members brought many problems and the mail brought more. In the afternoon a warm session with Navy Surgeon General Swanson and advisers on pending legislation to commission pharmacists in the Navy. The net result spells definite progress.

—8th and 9th—

Another week end in Washington necessitated by the pending Army and Navy legislation. A long chat with Congressman Bates who is strong for letting men rise to commissioned grades from the ranks, even though both Army and Navy top brass consider college training a necessity for the modern function of pharmacists in both services. Convincing a man with strong opposing convictions is never an easy task, particularly when he is a Congressman.

—10th—

Grinding away all morning, noon and night in preparation for the coming days of controversy over pending legislation and organizational changes.

—11th—

Staff meetings and completing the first N. F. Interim Revision Announcement that will permit using certain substitute solvents and flavors still difficult to obtain. In the afternoon before the Senate Judiciary Committee to plead for the retention of controls over quinidine.

—12th—

This morning before the Subcommittee of the Committee on Armed Services listening to the proposed amendments to the Medical Service Corps legislation and what the committee intends to do with them—a somewhat discouraging performance. At lunch with Dean DuMez and Maj. Aabel discussing the next steps. Much telephoning in the afternoon to sound sentiment of all interested groups. At night to dinner at the Ambassador with Sonnedecker and Charles Young discussing the revival of the old-time apothecaries' show globes.

—13th—

All morning at the Medical Service Corps bill hearings and real progress was made on amendments, thanks to the parliamentary skill of Congressmen Durham and Rivers who have their feet on the ground and know what it is all about.

At 2 p. m. on the express for New York arriving in time for the annual Drug, Chemical and Allied Trades Dinner at the Waldorf, which attracted over 2000 men who listened to a fine address on world affairs by Senator Brewster of Maine. Here is an annual occasion at which one can meet almost everyone of importance in the drug industry.

—14th—

Transacting much important business in New York by telephone in the early morning hours and then to Brooklyn for an eleven o'clock address to the Student Branch of St. John's University College of Pharmacy, with Dean Dandreau and Prof. Herbert Raubenheimer doing the honors and Sister Rose Dominici, hard-working and enthusiastic secretary of the Branch, modestly acknowledging her interest in the proceedings.

By taxi to the Brooklyn College of Pharmacy, Long Island University, where Dean Schaefer spread a quick lunch during which A. PH. A. secretary-treasurer's business was transacted. Then a rousing welcome from the largest student branch of the A. PH. A.—the Brooklyn College of Pharmacy Student Branch, whose faculty adviser is the popular Prof. Joseph Goldwag. Here we were privileged to install the new officers of the Branch; and a fine group they are, headed by William de Neergaard.

Now back to Manhattan for a session with Swain, DuMez and Frates on the Medical Service Corps legislation, and then to Red Bank for some pressing personal business which Uncle Sam insists must be completed and in the mail before midnight tomorrow.

—15th and 16th—

"Blessed be the man who first invented sleep." A restful week end at home, and then back to Washington on Sunday night.

—17th—

The general routine interspersed by an inspection of the grounds around the headquarters building in preparation for spring and summer. Also, a pleasant visit from a group of Sisters who are taking pharmacy training at Providence Hospital as a part of a course in hospital administration.

—18th and 19th—

Much activity on the Medical Service Corps legislation including a long conference with the very able Congresswoman from Maine, Honorable Margaret Chase Smith, who presides most competently over the subcommittee dealing with this legislation.

—20th—

Following postponement of a continuation of hearings on the Medical Service Corps bill, Messrs. Einbeck, Frates and DuMez came to the A. PH. A. Building for further discussion of strategy and preparation of letters and briefs; also a long and pleasant visit from President Graham of the University of North Carolina who is interested in building an outstanding pharmacy college in the South.

# PLANNING · NOT LUCK

## Neo-Iopax

Planning—not luck—is responsible for the pure, crystal-clear solution of NEO-IOPAX for urography. Every precaution known for obtaining a sterile fluid, completely free from foreign particles, is taken with this contrast medium during its production. And when NEO-IOPAX is ampuled it must pass before a corps of specially trained inspectors whose sole task is to detect and reject any solution containing the least visible trace of extraneous matter.

A final inspection by the physician himself before intravenous or retrograde injection is invited by the water-clear glass ampule in which NEO-IOPAX is dispensed.

NEO-IOPAX, disodium N-methyl-3,5-diiodo-chelidamate, is supplied as a stable, crystal-clear solution in 50 and 75 per cent concentrations.

Trade-Mark NEO-IOPAX—Reg. U. S. Pat. Off.

Schering CORPORATION · BLOOMFIELD, N. J.

IN CANADA, SCHERING CORPORATION LIMITED, MONTREAL

—24th—

After another week end on the banks of the Shrewsbury, a quick trip to New York to inspect the model for the base of the memorial flagstaff now nearing completion in the studio of Sculptor Ulysses Ricci. To the Chemists Club for a luncheon conference with advertising manager, John Winter, and then to the train for Washington, arriving in time to spend the evening with the day's mail and the dictaphone.

—26th—

This day listening to arguments before the Senate Committee on Education, which is considering a bill to create a cabinet post to administer health, welfare and education. Spoke briefly before the committee in behalf of retention of the Food and Drug Administration and U. S. Public Health Service as now constituted in the Federal Security Agency.

—27th—

After the day's work a sleeper ride to New York necessitated by a nuisance suit brought against the American Cancer Society by a disgruntled unsuccessful bidder on the Pharmacy Week display. The suit was for an injunction to prevent the American Cancer Society from sending out the display to the 16,000 or more pharmacists who had signified their desire to help dedicate National Pharmacy Week to the fight against cancer.

—28th and 29th—

All these days and nights working with the attorneys in the preparation of the defense against the suit which, if successfully prosecuted, would kill the National Pharmacy Week program as it relates to cancer control.

## ARGENTINE SCIENTIST RECEIVES FIRST APMA RESEARCH AWARD

Dr. Bernardo Alberto Houssay of Buenos Aires, graduate pharmacist and physiologist, is the recipient of the first annual research award of the American Pharmaceutical Manufacturers Association. Frequently referred to as the world's greatest living physiologist, Dr. Houssay is particularly noted for furthering medical knowledge of the pituitary gland. It was through his work that the relation of the pituitary gland to diabetes was firmly established.

Dr. Houssay received his pharmacy degree from the University of Buenos Aires in 1904 and in 1911 received his doctor of medicine from the same University.

Presentation of the award was made at the opening session of the 1947 annual meeting of the American Pharmaceutical Manufacturers Association in Boca Raton, Fla.

## A. Ph. A. Branches

### LOCAL BRANCHES

THE **North Pacific Branch** scheduled a seminar for all registered pharmacists in April. An outstanding program under the direction of Dean George E. Crossen, School of Pharmacy, Oregon State College, included discussions of scientific, educational and economic phases of pharmacy. A. PH. A. members will remember Dr. Crossen's efficient service in a similar capacity last year as chairman of the parent organization's Section on Practical Pharmacy.

Featured at the April meeting of the **New York Branch** were addresses on amino acids and protein hydrolysates by Dr. F. W. Co Tui, professor of experimental surgery, New York Medical College and Dr. L. R. Hines, head of the Biological Division, Squibb Laboratories.

Secretary Robert L. McNeil, Jr., of the **Philadelphia Branch** reports an unusual presentation at a recent meeting on "The Technical Importance of Language" by Sereck H. Fox, technical director of Gelatin Products Corp. Mr. Fox reviewed briefly the science of effective expression known as "general semantics." Calling attention to the little importance attached to proper training in use of language by the average technical curriculum, Mr. Fox emphasized that this places the graduate at a disadvantage when he later assumes administrative duties. He stated that understanding on the part of the listener or reader is the direct result of clarity of thought by the speaker or writer, and his choice and orientation of words. By specific examples, Mr. Fox demonstrated the need for greater attention to precise, simple and direct writing in professional and scientific fields.

Dr. Paul C. Olsen, lecturer at Philadelphia College of Pharmacy and Science and Rutgers University, led a panel discussion at the April session of the **Philadelphia Branch.** Topics of both professional and economic interest were discussed. Martin S. Ulan, Rutgers University, and Morris E. Blatman, owner of Blatman Apothecary, were scheduled as speakers for this occasion.

Branch members elected the following officers: Madeline O. Holland, president; John E. Kramer, first vice-president; Robert L. McNeil, Jr. second vice-president; Paul W. Wilcox, secretary-treasurer; Frank Eby, delegate; and Madeline O. Holland, alternate delegate.

Dr. Forest C. Krakaw lectured at the April meeting of the **Northern California Branch.** The subject

(*Continued page 292*)

# For a Complete ℞ Stock You Need

# Wallace DERMATOLOGICALS

Here is an easy, non-messy treatment that gets results.

## New Therapy for Stubborn "Athlete's Foot"

**Trimethyl**

**Cetyl**

**Ammonium**

**Pentachlorphenate**

Here's a potent new fungicide. We're telling your doctors about T.C.A.P. Fungicidal Ointment in medical journals and direct mail in a special summer campaign.

Soon your customers with stubborn "Athlete's Foot" will be bringing you prescriptions for this new fungicide.

Trimethyl Cetyl Ammonium Pentachlorphenate (T.C.A.P.) is bactericidal as well as fungicidal. Secondary infections are rapidly healed by this non-keratolytic, adherent fungicide.

Better complete your stock of modern fungicides with T.C.A.P. It's a profitable (40%) summer specialty. Supplied in jars of 55 grams.

**T. C. A. P. FUNGICIDAL OINTMENT**

## TWO MORE POPULAR NEW ETHICALS

### For ACNE

**Intraderm Sulfur Solution**
Reg. U. S. Pat. Off.

Skin-Penetrant Solution containing potent polysulfides. Penetrates the skin via hair follicles. Saturates lesions with sulfides.

Softens and aids removal of Keratin plugs. Effects thorough cleansing of follicles.

### For BOILS

**Intraderm Tyrothricin Solution**
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Skin-Penetrant Solution containing 1,000 mmg. tyrothricin per ml. in true solution. Powerful antibiotic, tyrothricin, is rapidly bactericidal to gram-positive organisms.

Non-sensitizing treatment effective for boils, carbuncles, and infected wounds.

ORDER FROM YOUR WHOLESALER

**WALLACE LABORATORIES INC., New Brunswick, N. J.**

of his talk was "Sinuses and Sinus Infections." A second feature was a talk by Linn Walsh, secretary of the California State Board of Pharmacy, on "Legislation in Prospect for Pharmacy in the Coming Legislative Period."

Members of the **Northwestern Ohio Branch** heard Dr. Herman W. Dorn speak on "Vitamin E and Its Application in Nutrition" at their session in March, according to Secretary Walding G. Rupp. Dr. Dorn is supervisor of biochemistry for Owens-Illinois Glass Co. At a later meeting Maxwell L. Cooley, chief chemist of General Mills' Larrowe Division, discussed hormones, vitamins,and vaccines propagated on chick embryos.

The **Chicago Branch** recently heard Charles M. Wilson, director of Chicago Police Scientific Crime Detection Laboratory speak on "Laboratory Aids in Criminal Investigation." The Chicago meetings feature montly discussions on prescription problems and "What's New in Pharmacy," which are of special interest to practicing pharmacists.

Thorough discussion of the Veterans Administration plan for medical and pharmaceutical care of disabled veterans highlighted the March meeting of the **New York Branch.** Following three addresses on various phases of medical service for veterans there was an extended question and answer period. Of about 1,943,000 New York State veterans it was estimated that 300,000 had service-incurred disabilities.

### STUDENT BRANCHES

Top news of the day came in a letter received at A. PH. A. headquarters from Prof. Charles Rabe, Jr., faculty adviser to the branch at the **St. Louis College of Pharmacy and Allied Sciences.** He reports 100% A. PH. A. associate membership in all of their classes. Grand total: 263. Congratulations! This lively branch now joins the exclusive roster of those that have reached a goal that cannot be exceeded. Perhaps this record will supply the impetus for new membership drives in other colleges, with similar results. Newly elected officers are: Glen R. Dove, president; Ambrose Mueller, Jr., vice-president; Chase Bryant, secretary; Kenneth Mehrle, treasurer.

Secretary Ruth R. Ham reports that the April meeting of the **University of Texas Branch** was devoted almost entirely to the subject of cancer in recognition of National Pharmacy Week. Commentary on cancer prevention accompanied a film titled "Time Is Life" which was shown by a member of the city health department and copies of a booklet "Answers to the Public's Questions on Cancer" were distributed. The guest speaker was Dr. J. V. Irons, director of State Health Laboratories. At the business meeting President J. D. Carpenter appointed the following committee to collect dues and recruit new members to the "Lone Star" group: Jimmy Dean, R. C. Wakefield, Frank Pineda, Mrs. Evelyn Pflueger, and Charles Bowen.

A membership drive is being planned by the **Montana State University Branch,** according to Secretary Audrey Fialka, and several activities for the spring season are scheduled. Officers recently elected to head the Branch are: Frank Orland, president; Charles McNicol, vice-president; Audrey Fialka, secretary; and Ramona Holderman, treasurer.

Guest speakers at recent sessions of the **Massachusetts College of Pharmacy Branch** have been Thomas McGeever, district supervisor for the Federal Narcotic Bureau, who discussed "Narcotics and Illicit Trade"; and E. Boyce, Chief of Investigation, Department of Public Health, who described investigations within the fields of foods and drugs.

Willian T. Bidwell, representing the **University of Michigan Student Branch,** carried off first prize in the R. L. McCabe Pharmacy competition for his paper on "A Prescription Survey" at the "student night" meeting of the Michigan Branch of the A. PH. A. in March.

At the April meeting of the **University of Michigan Branch** a film on the use of folic acid in treating anemia was shown. Dr. Frank H. Bethell, assistant director of Simpson Memorial Institute, talked briefly on the same subject.

Students attending the April meeting of the **Southwestern Institute of Technology Branch** had many compliments for the address on "Specifications for a Good Pharmacist" presented by James Badgett, representing Merck & Co.

Secretary Arletta Barie of the **University of Buffalo Branch** announced the following officers elected for the new term: Charles Chapin, president; Elaine Urban, vice-president; Marcelyn Burke, secretary; and Mary Ann Veigel, treasurer. Miss Barie also reported that plans are well under way for a banquet, and a committee was appointed at the March meeting to make arrangements.

Recent meetings of the **University of Buffalo Branch** has spotlighted speakers on a variety of subjects, according to Secretary Arletta Barie. At the December session, Robert Gasen described his experiences as allocator of drugs in the Near East during World War II. More recently James H. Stobie, a fellow student member told of his trip to our capital city and his tour of the A. PH. A. headquarters building. Mr. Stobie also showed a group of snapshots he had taken during his visit. Other activities of the Buffalo Student Branch include plans to take a full page in the school publication, the "Buffalonian," and to operate a "bingo" booth at the school carnival.

From the west coast comes news from Secretary Edna Logan, at the **University of Southern California Branch,** of a membership drive among nearly two hundred students who have not yet joined up. Present membership totals 179.

Members of the **State College of Washington Branch** were advised by Dr. Jerry Kopet, Spokane retail pharmacist, to form good habits while still in school. Dr .Kopet discussed operation of a retail pharmacy.

At the **University of Iowa,** the A. PH. A. Student Branch saw two motion pictures at the April meeting. Robert Marshall of McKesson & Robbins and Glen Stitsell of Globe Laboratories, presented the films "Diseases of Swine" and "Diseases of Cattle."

A color film of scenes in the vicinity of Honolulu was the entertainment provided for the members of the **University of Michigan Branch** following their usual business session at the February meeting. Secretary John M. Priestly announced the arrival of copies of "New and Non-Official Remedies" donated by the American Medical Association and distributed by the AMERICAN PHARMACEUTICAL ASSOCIATION.

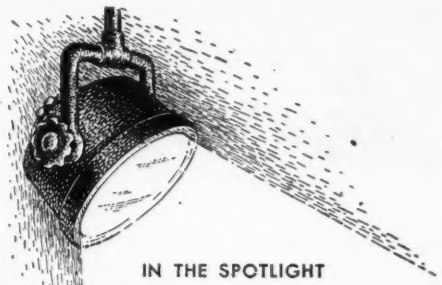
Secretary Helen Ullom of the **University of Nebraska Branch** announced new officers elected to serve the "Cornhuskers" during the next year: James Dusenberry is president, Carl Glen, vice-president, Mary O'Connor, secretary and George Breon, treasurer. Miss Ullom also reports a gain in membership over a five-months' period from 14 to 105 as a result of a membership drive. During the last months of 1946, the Branch made plans to use a full page in the Cornhusker year book. A new bylaw of the Branch provides that each class may elect a class president during the first month of each school year, who shall serve as a member of the executive council and be responsible to the class in connection with activities of the Student Branch.

Modernization increases sales 25% according to Dr. Herman C. Nolen of the College of Commerce who spoke on "Modern Drugstore Management" before the **Ohio State University Student Branch** at its February meeting. Leo Price was named president-elect following the resignation of Fred McAffee.

Interest in legislation affecting pharmacists was shown at the February meeting of the **University of Texas Branch** when it was voted to support the fair trade bill pending before the Texas Senate, Secretary Jane P. Fitzpatrick reports. Earlier, further plans were discussed for an April visit to the Eli Lilly and Co. laboratories and biological farms.

### NEW FILM FOR BRANCH PROGRAMS

A. PH.A. branches may be interested in the announcement from Mallinckrodt that a new 16-mm. sound film on "Ether in Anesthesia" is available for professional and student meetings. The picture documents achievements of manufacturing chemists in making ether a safe, reliable, and economical anesthetic. This supplements the firm's earlier film, "Advent of Anesthesia," which is still available. Both films are loaned without charge upon application to the Mallinckrodt Chemical Works, Advertising Dept., St. Louis 7, Mo.

IN THE SPOTLIGHT

Cholanox.

(a prescription repeater)

The quick acceptance of this new Maltbie tablet by physicians is attributable to these factors:

CHOLANOX represents the physiological approach to the medical management of BILIARY DISEASE,

CHOLANOX functions by HYDROCHOLERESIS or increased production of thin, free flowing bile and,

BILE SALT REPLACEMENT—the supplying of natural bile salts for the efficient digestion and absorption of fats and minerals.

CHOLANOX contains Ketocholanic acids and dehydrated whole ox bile. Remember to include CHOLANOX in your next order to your wholesaler.

BOTTLES OF 100 TABLETS

Maltbie *Better Medicinals through Research*

THE MALTBIE CHEMICAL COMPANY
NEWARK 1 • NEW JERSEY

# New A. Ph. A. Members

The American Pharmaceutical Association extends a cordial welcome to the men and women joining in its expanded program on behalf of the profession. Those accepted for active membership during the month preceding March 20 are listed below.

**NEW LIFE MEMBERS**

**Ilkuvitz, Norman,** 553 Miller Ave., Clairton, Pa.

**Terry, Ralph Eugene,** 808 S. Wood St., Chicago, Ill.

### ALABAMA

Barry, Paul P., Montgomery

### CALIFORNIA

Baird, George Q., Los Angeles
Beard, Henry W., San Francisco
Brodie, Louis, San Francisco
Carlson, Stephine Olga, Glendale
Chase, Jack L., Los Angeles
Dahl, Elmer V., Pacific Palisades
D'Anna, Nina R., San Jose
Fair, Dorothy Marie, Van Nuys
Luce, Roland F., San Francisco
Macurdy, Warren K., Glendale
Pellerite, Jack J., Alameda
Reade, Clifford, M., Sacramento
Suzuki, Naoshi, Montebello
Thomas, Harold L., San Francisco
Wagner, E. D., Anaheim

### DISTRICT OF COLUMBIA

Mason, Arnold E., Washington
Shulman, Emanuel V., Washington

### FLORIDA

Ferguson, Dwight Lindsay, Bay Pines
Strawder, Grady B., Palatka

### GEORGIA

Sabo, Arthur William, Augusta

### ILLINOIS

Bowman, Burton, Chicago
Eash, Herbert R., Dundee
Foohy, Walter, Chicago
Heafner, Vernon F., Belleville
Jarecki, Robert A., Chicago
Lindemann, George E., Chicago
Robinson, Catherine M., Chicago
Shay, J. Arthur, Chicago
Sister Mary Tarcisia Bucki, Chicago
Venetucci, Adelaide E., Chicago
Wilcox, George, Hampshire

### INDIANA

Bastian, Donald E., Charlestown
Demers, Francois X., Jr., Lafayette
Elkas, Robert W., Lafayette
Survant, Russell Millard, New Castle

### KANSAS

Burke, Josie, Scammon
Schrepel, John W., Pratt

### KENTUCKY

Duncan, Stanley, Covington

### LOUISIANA

Sister Mary Irene Broussard, New Orleans

### MAINE

Osborne, James E., Calais

### MASSACHUSETTS

Howard, William F., Boston
Samuda, Sylvia E., Boston

### MICHIGAN

Adler, Robert T., Detroit
ApMadoc, W. Tudor, Dearborn
Caswell, Charles F., Dearborn
Dittmer, Herbert C., Detroit
Hoffman, Kenneth H., Holland
Lawson, Lloyd D., Detroit
Lewis, Leonard O., Detroit
Millard, Frank, Jr., Detroit
Ott, David E., Ann Arbor
Rumble, Ernest N., Highland Park
Smith, Frank A., Jr., Detroit

### MINNESOTA

Carlson, Edward H., Two Harbors
Stenborg, William A., Minneapolis

### NEBRASKA

Bergquist, Jean, Omaha
Redford, Helena I., Lincoln

### NEW HAMPSHIRE

Duda, Walter J., Manchester

### NEW JERSEY

Braverman, Jack, Newark
McNulty, George M., Elizabeth
Miserendino, Mary Cecilia, Westville Grove
Porsavage, Peter M., Verona
Rappaport, David S., Newark
Sinakin, Richard M., Jersey City
Trudeau, Robert I., East Orange

### NEW YORK

Gans, Harry, New York
Liberman, Samuel S., New York
Mendel, J., New York
Plummer, Thomas F., Brooklyn
Reines, Albert A., Brooklyn
Scelfo, Anthony A., Flushing
Williams, Fred L., Plattsburg
Wong, William J., New York
Zahn, Peter E., New York

### NORTH CAROLINA

Hedrick, Hoyt C., Lexington

### OHIO

Buell, Clarence A., Toledo
Cohen, Aaron M., Cleveland
Cohen, Yale J., Cleveland
Conley, Bernard E., Columbus
Cusick, Paul Francis, Cleveland
Davis, Arthur J., Norwood
Erdeljon, Charles, Cincinnati
Erion, Robert A., Cincinnati
Foulk, William D., Kent
Goldman, Benjamin L., Cleveland
Harrington, E. W., Columbus
Hartman, Alfred H., Cleveland Heights
Houk, Paul W., Akron
Leiken, Harry G., E. Cleveland
Linder, George E., Cincinnati
Neuger, Joseph M., Cleveland
Pelunis, Sidney, Shaker Heights
Prusak, Leonard P., Cleveland Heights
Schmidt, Taras N., Cleveland
Tobin, Herman, Cleveland

### PENNSYLVANIA

Ashkenaz, David M., Philadelphia
Baldino, Ralph D., Broomall
Carrato, Carmen A., Philadelphia
D'Abbruzzio, Mary, Philadelphia
Evans, C. Albert, Ebensburg
Fleischer, Alfred Joseph, Philadelphia
Grady, William D., Johnstown
Hicks, Carmi, Mrs., Philadelphia
Jones, Evan A., Philadelphia
Korner, John, Philadelphia
Moyer, Ella Louise, Philadelphia
Oser, Herbert, Philadelphia
Rugg, Dan M., Jr., Philadelphia
Russell, Percy R., Havertown
Swan, Ethel M., Cresson
Walkingshaw, Robert, Jr., Sewickley
Welsh, C. A., White Haven

### SOUTH CAROLINA

Plaxco, James M., Jr., Columbia

### SOUTH DAKOTA

Berg, Warren A., Brookings
Kendall, Richard W., Brookings

### TENNESSEE

Carman, Paul Eve, Bristol

### TEXAS

McMahon, David T., Jr., South San Antonio

### VIRGINIA

Schultz, Frederick C., Arlington

### WASHINGTON

Archer, Bent Edison, Seattle

# Is there a doctor not in the house?

HOUSED in the files of the Advertising Department are the names and addresses of 175 thousand physicians, druggists, and hospitals.

Almost every week, Ciba mails them such informative material as: anatomical drawings, the Ciba Symposia, reprints of significant articles, and literature describing Ciba products.

These mailings are a link between the medical profession and the Ciba research men who devote their energies to the quest for new and better drugs.

To accomplish their objective, Ciba scientists expend patient effort... perhaps years for development... additional time in pharmacologic studies... and still more in painstaking clinical evaluation.

And even after the new drug has cleared the last hurdle of research and entered the Ciba plant for large-scale production, the laboratories keep constant control over the product through a system of meticulous tests and assays.

In this manner, the users of Ciba products are assured of the finest of pharmaceuticals and steroid hormones.

**CIBA PHARMACEUTICAL PRODUCTS, INC.**

**SUMMIT, NEW JERSEY**

CIBA

## NUPERCAINAL

### a Product of Ciba Research

Containing the well-known anesthetic, Nupercaine, Nupercainal gives prompt, lasting relief in: hemorrhoids, simple burns, and other conditions requiring prolonged surface analgesia. Available in 1 oz. tubes and 1 lb. jars.

Nupercaine *(brand of dibucaine)*
Nupercainal *(brand of dibucaine ointment)*
Trade Marks Reg. U. S. Pat. Off.

Tomorrow's Medicine from Today's Research

Hufford, Edna Allen, Mrs., Seattle

**WISCONSIN**

Albers, Rudolph C., Milwaukee
Boyer, Albert E., Milwaukee
Carriveau, Lawrence J., Milwaukee
Cleary, Robert J., Superior
Colby, Amos B., Madison
Kienth, Arthur E., Milwaukee
McCullough, Edward A., Wauwatosa
Schewe, Henry G., Wauwatosa
Sister M. Emmelia Fischer, Oshkosh
Wileau, Lynn, Delavan

**FOREIGN**

Allmark, M. Gordon, Ottawa, Canada
Ditmars, Voorheis M., Moncton, N. B., Canada
Godwin, Eric C., Montreal, Quebec, Canada
Jeffery, James G., Saskatoon, Sask., Canada
Martinez, . Jesus Santos, Hato Rey, Puerto Rico

## Deceased Members

Ahlborn, Frank H., Chicago, Ill., died Feb. 4, 1947
Alfstrum, Axel Fridolf, Carlton, Minn., died Oct., 1946
Gardner, James R., Washington, D. C., died Dec., 1945
Harley, Harry H., Lincoln, Nebr.
Hofstetter, Albert A., Toledo, Ohio
Hulett, Arthur G., Los Angeles, Calif., died Feb. 9, 1947
Richtmann, William O. (a life member), Madison, Wis., died Feb. 28, 1947
Walbrach, Arthur (a life member), Denver, Colo., died May 11, 1937.

# ADR

## DENTAL REMEDIES RECENTLY ACCEPTED BY A. D. A. COUNCIL ON DENTAL THERAPEUTICS

*Admission to* Accepted Dental Remedies *means that a product and the methods by which it was marketed at the time of consideration were not found to be in violation of the published rules of the Council on Dental Therapeutics. A summary of the rules appeared in* THIS JOURNAL, *7: 153 (April), 1946. Accepted products are reconsidered periodically.*

### DENTIFRICES*

**Singleton's Tooth Powder:** Each 100 Gm. is stated to contain precipitated calcium carbonate (No. 130 Sturge), 89 Gm.; powdered neutral soap, 9.20 Gm.; saccharin soluble, 0.11 Gm.; methyl salicylate, 1.65 Gm.; and oil of anise, .05 Gm. Manufactured by the SAVOY DRUG & CHEMICAL CO., CHICAGO; distributed by FRANK SINGLETON, CHICAGO.

### REMEDIES NOT ACCEPTABLE

Calcifo Dentifrice, the Calcifo Chemical Co., New York, has been submitted to the Council for inclusion in *Accepted Dental Remedies*. It is stated that the formula for this product is based on that of Viggo Andresen. The ingredients are listed as follows: tartaric acid, 225 Gm.; solution of gelatin, 25 Gm.; precipitated calcium phosphate, 80 Gm.; precipitated calcium carbonate, 80 Gm.; basic magnesium carbonate, 80 Gm.; soluble saccharin, 1.25 Gm.; sodium bicarbonate, 280 Gm.; sodium chloride (dried), 80 Gm.; oil of peppermint, 6.25 Gm.; and zinc chloride, 1.45 Gm.

No advertising literature accompanied the submitted product. The firm states that all therapeutic claims will be eliminated from the labels and other advertising material.

The composition corresponds to that of the "white effervescing, mineralizing Anticarieticum" of Viggo Andresen,[1] suggested by him for the purpose of hardening partially decalcified tooth regions. Although probably as efficient a dentifrice as any, Calcifo is needlessly complex. It is not clear whether it cleans in the manner of an acid (such as tartaric), a mechanical detergent (effervescent), or a conventional dentifrice (abrasive). If it is assumed, as appears logical, that abrasiveness is its most significant property, then the presence of tartaric acid is a complicating factor with greater potentiality for doing harm than good.

As regards the "remineralizing" feature, whether superficially destroyed tooth structure is capable of recalcification or remineralization under the influence of Calcifo is seriously questioned.[2] Because of its possible deleterious effects on the teeth, when used as directed, and unnecessary complexity for use as a dentifrice, Calcifo Remineralizing Dntifrice is declared not acceptable for *Accepted Dental Remedies*.

Further evidence with regard to this class of products will be considered by the Council when it becomes available.

### NEUTROX

The Vick Chemical Company, distributor of Neutrox, states that the composition of Neutrox is as follows: sodium perborate monohydrate (U. S. P. dehydrated), 30 per cent; monocalcium phosphate, 30 per cent; tricalcium phosphate, 23.87 per cent; magnesium carbonate, 10 per cent; saccharin soluble, 0.3 per cent; sodium chloride, 2 per cent; menthol, 0.33 per cent; oil of peppermint, 0.5 per cent; methyl salicylate, 0.65 per cent; oil of anise, 0.042 per cent; liquid petrolatum, light, 1.81 per cent, and sodium lauryl sulfoacetate, 0.5 per cent.

The firm has agreed to keep the Council on Dental Therapeutics informed of all changes in the composition of Neutrox. Neutrox is covered by U. S. Patent 2,094,671 and U. S. Trade-Mark 355,919.

Neutrox is a mixture of sodium perborate monohydrate and acid calcium phosphate together with ingredients usually found in dentifrices. Magnesium carbonate and tricalcium phosphate are apparently included for their abrasive cleansing effect.

Neutrox currently is advertised only to dentists. Following are some of the claims made for the product: "It is a *new* and *more efficacious* way to treat gingival infections." "It supplements your office treatments." "It is evidence of your own specialized knowledge." "It promotes better patient cooperation." "Safe oxygen therapy for daily home use...absolutely no burn."

These statements appear to encourage prolonged daily home use of a dentifrice which contains an oxidizing agent. The Council does not accept such agents because it does not have evidence to show that their use is warranted or beneficial or that they are entirely free from irritating effects.

Neutrox is unacceptable for Accepted Dental Remedies because therapeutic claims for the product are not adequately supported by scientific evidence which is available to the Council, and daily use of a dentifrice which contains a strong oxidizing agent does not appear to be warranted or desirable.

As a matter of general policy, all decisions of the Council are subject to revision in the light of new scientific evidence.

* *A. D. R.*, Ed. 12, p. 156.

[1] Andresen, V., *Physiological and Artificial Mineralization of the Enamel*., Oslo: Einar Dancke, 1926.
[2] Report of the Council, *J. Am. Dent. Assoc.*, 26: 1887 (November), 1939.

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